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THE EVOLUTION OF POLICY IN
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THE PROTECTION
AND USE OF NATURAL
RESOURCES
IN ONTARIO

BY W. R. SMITHIES



PREPARED FOR THE
ONTARIO ECONOMIC COUNCIL



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by

W. R. Smithies

This is one of several studies prepared for the Ontario Economic Council.
Although these studies are published under the auspices of the Council,
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THE EVOLUTION OF POLICY IN CONTEMPORARY ONTARIO

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THE PROTECTION AND USE OF ONTARIO'S NATURAL RESOURCES

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THE PROTECTION AND USE OF NATURAL RESOURCES IN ONTARIO

by W. R. Smithies*

Introduction

Natural resources are a basis of national wealth. Their development and utilization have been central concerns of all governments. Although technological advance has led to more efficient use of resources and made new ones available, most regions of the world have been slow to apply technology to prevent despoliation and reduce waste. The environment has suffered widespread pollution.

A new consciousness has now emerged to stress the economic and social validity of resource conservation and the protection of the environment from unrestricted exploitation. The boundary of public policy in advanced political jurisdictions has been widened as government control by regulation and planning has become a more and more prominent feature.

In Canada, concern over the environment and use of resources has tended to come to a head in Ontario, the nation's most urban and industrialized province. In consequence, the province has

* Walter R. Smithies is a consultant on natural resource economics. He has degrees in chemistry and economics, and a background of research and administration in natural products and food processing. He lives in Toronto.

led the way in drafting legislation and in implementing programs relating to land, water, air, forests, minerals, fish and game.

We are concerned here with both the substance of policy and with the events and climate of opinion that give it shape. Special attention is paid to the influence exerted on resource and environmental programs by the main thrust of provincial economic and social policies. It should be noted, however, that resource and environmental considerations are now of such importance that they in turn influence public and government attitudes towards social and economic goals. This has implications of critical importance for the future.

Concern with resource and environmental policies is of necessity limited to certain aspects. The study explores attitudes towards the use of renewable and nonrenewable resources. It deals with energy policy only as related to the problem of pollution. It is concerned, of course, with the problem of environmental pollution itself. Land use falling within the area of municipal planning or covered by the Planning Act is dealt with in a separate report by the Ontario Economic Council.*

The role that one level of government within a federation can play in resource management is circumscribed by the Canadian constitution. Other than private property, the province owns most natural resources lying within its boundaries. Federal government ownership is confined to certain national parks, airports, harbours, canals and the like. For purposes within its legislative right, Ottawa has the power to acquire resources by purchase or expropriation, and can place restrictions on ownership by declaration of the interests of Canada.

With respect to legislative powers, the senior levels of government overlap, for both may make laws covering much of the resource area. The right of the provincial governments to legislate for the protection of the environment as provided in the Ontario Environmental Protection Act, was upheld in the Ontario Supreme Court in March 1973. In a matter of concurrent law, the federal legislation prevails when conflict ensues

* Subject to Approval. A Review of Municipal Planning in Ontario. Ontario Economic Council. March, 1973.

or wherever there is an international involvement. The potential for conflict exists where a province has proceeded to legislate in advance of the federal government. This is what Ontario has done in a number of instances in which matter of environment protection and urban and industrial development have been involved.

The federal government can and does become involved in activities outside its express legislative jurisdiction by using its right to grant or lend money to assist projects or programs which are strictly speaking within the provincial ambit. In Ontario, federal involvement through the power of Ottawa's purse usually is indirect, for Queen's Park normally takes care that such assistance, to a municipality for example, is channelled through or associated with provincial programs.

The province itself can devolve responsibility to municipal government and many times this is done by so-called enabling or permissive legislation, leaving it up to the municipality to make by-laws and to enforce them if the need or desire is present. Provincial grants or borrowing power find a wide role in creating incentives for desirable forms of resource use.

The custom in the laissez-faire era of the nineteenth and early twentieth centuries was to leave the private sector more or less free to make use of resources at will, subject to licensing fees, and encouraged or discouraged by taxation, subsidies or other financial arrangement.

Circumstances dictate the efficiency of the various strategies that can be applied to control resource use. For better or worse, over the years there has been an increased degree of centralization and assumption of statutory power in the hands of the provincial government. This study deals with the growth of provincial policy in the resource and environmental fields and indicates potential problems facing the provincial government in the years ahead.

CHAPTER I

The Early Years

The threat of depletion of Ontario's natural resources has been forced on our senses only recently. The early years of Ontario's history could be called "The Age of Waste". Such was the title chosen for the first part of the centennial history of the public management of lands, forests and wildlife in Ontario 1763-1967, which was published under the title of Renewing Nature's Wealth by the Department of Lands and Forests. This recorded the wasteful and destructive use of resources in the eighteenth and the first half of the nineteenth centuries by both private and public interests. Hindsight may encourage harsh judgments of the early pioneers. They were honest in the belief that the resources of the land were inexhaustible. In any event, the knowledge and experience required to practice conservation developed only with time.

Settlement

The first major influx of settlers into Ontario (Upper Canada) followed the American Revolution. Settlement was limited to the shores of Lake Ontario and Lake Erie and the St. Lawrence River valley. The lack of roads and the dependence on water-borne transport meant that the hinterland was seen primarily as

a forest resource. The importance of the forests was recognized by the British government and the concept of Crown lands was adopted in order to reserve timber for naval construction. It was not until 1826 that permits to cut were issued to other than naval contractors. Cutting was subject to stumpage dues and licenses were issued by auction, but so irregularly were controls enforced that the colony lost much revenue because of illicit operations.

Growth in population led to conflict in resource use between lumbermen and colonists clearing the land for agriculture. A further complication arose because much of the best farming land in southern Ontario had been granted to privileged individuals who too often made poor use of it, or sold it to land speculators.

The tide of immigrants increased after the 1830's and the need for land grew. The population of Upper Canada reached almost one million by 1851. Crown lands began to be seen more and more as the basis for agricultural settlement rather than as a forest reserve.

Revenue needed for development could in theory be raised by selling land and profitably disposing of the timber before it was cleared and settled. The Commissioner of Crown Lands administering the 1837 Lands Act found himself in competition with speculators holding more desirable property, while the settlers often took to themselves the right to cut and dispose of timber stands. Inflexible regulations led to large areas of virgin forests in southern Ontario being cleared by burning, and the ashes disposed of as a source of potash for soap and gunpowder manufacture.

An amendment to the Lands Act in 1841 regularized free land grants, but the land speculator was not driven out of business. To assist the *bona fide* settler, new areas were opened up farther to the north. In the next one hundred years the government followed a settlement policy that unfortunately, more often than not, encouraged farming on land unsuitable for agriculture.

Two instances stand out in illustration. Throughout the 1850's the belief prevailed that the Pre-Cambrian Shield harboured large areas of farming land. Roads were built to open up the shield country between Lake Simcoe and the Ottawa Valley

(the Ottawa-Huron Tract). By 1863, however, its lack of fertility had become clear. No settlers came to replace those who were leaving and the colonization roads fell into disrepair. A Select Committee at the time recommended that the suitability of a region for farming be thoroughly investigated before settlement should be encouraged.

Surveying of the northern Crown lands began about 1900 and led to the discovery of the clay belt, the relatively fertile tract extending across the province north of the height of land and west of Lake Abitibi. In spite of past experiences, the Crown Lands Department lost no time in encouraging immigration into "New Ontario" by opening up the belt both to land sales and to free land grants. The harshness of the northern climate and the short growing season of barely two months, with high summer rainfall, made agriculture mainly unprofitable. Many settlers abandoned their farms and, contrary to official desires, began to devote their efforts to timber marketing. During the depression years government subsidies were offered to promote northern settlements by farmers but were unsuccessful in checking the gradual decline of agricultural development in the region.

Resources Exploited for Revenue and Profit

From 1841 to 1867 the Crown Lands Department was the biggest and most loosely knit of all government ministries. Its functions were steadily enlarged to include the whole field of natural resources, as well as handling timber licenses and dues. Mining claims were added in 1846 and fisheries in 1857. At Confederation, Ottawa took over the fisheries and Ontario retained the other branches.

The Department was faced with administering two major programs. It disposed of land cheaply or by free grant and it attempted to raise maximum revenues from timber and mineral rights. The basic incompatibility made policy confusing to administer. Furthermore the set-up of the Department was not conducive to high standards of integrity or resistance to outside pressures.

Resources were both a source of government revenue and the basis of employment and economic development. Development was seen as an entrepreneurial function, unfettered as far as

possible by government intervention, and best left to the natural laws of supply and demand. As the forest and mineral industries grew, they increasingly dominated government policy. Their primary concerns were short term and largely related to the unpredictable export trade.

The forest industry's aim was to maximize profits and the government's was to maximize revenue. This created a mutual interest in exploiting rather than conserving resources. With this in mind, the government role was restricted to no more than revenue collection, arbitration between interests, and ensuring that regulations, if necessary, were applied fairly. This policy was set out in the 1849 Act for the Sale and Better Management of Timber upon Public Lands.

On the other hand, attempts to enforce good forestry practice and ensure the maximum economic advantage to Canada and Ontario faced disapproval from industry and exporters' lobbies. For instance, despite the recommendations of a Select Committee in 1868, uncontrolled bark stripping to supply the United States tanning industry led to the complete destruction of the hemlock forests. The government was swayed by the exporters' insistence that they provided revenue, employment, wages, and gave impetus to other industries.

Tariff revisions by the United States Government in the 1890's brought an increase in exports of sawlogs, including much of the great red and white pine stands. This was a handicap to Ontario sawmills until 1898 when regulations, adopted in spite of pressure from Michigan mill owners, provided that all logs cut on crown land should be processed in the province.

Before the turn of the century the philosophy of earlier legislation—that forest resources were inexhaustible—was beginning to be questioned. In 1871 Sir John A. Macdonald, as Prime Minister, wrote to Hon. J. S. Macdonald, Premier of Ontario, saying: "We are recklessly destroying the timber of Canada, and there is scarcely a possibility of replacing it". In 1879 the Ontario Fruit Growers' Association saw a need to "...put forth their best efforts to husband our dominion and provincial resources in timber limits . . .". The wasteful logging techniques had produced a serious fire menace. To counter this, a preventative program was implemented from 1885 although hardly on an adequate scale. Another government measure,

taken very largely in recognition of the situation, was the setting aside of Algonquin Park as a reservation in 1893. This area, embracing the headwaters of the Muskoka, Madawaska and Petawawa Rivers, was already badly burned, its red and white pine cut over. Some years later the Forest Reserves Act provided for tracts of crown land, free from mining and lumbering operations, to be set aside for future timber needs. Professional foresters were urging the forest industries to operate on a sustained yield basis. Present mature stocks should be used to best advantage and provision made for regeneration and maintenance of further crops.

A public outcry arose when uncontrolled cutting was allowed on the rich Temagami reserve and the government was accused of abetting the exploitation of the "New Ontario" by timber barons. The Liberals, after thirty-three years in office, were defeated. Under the new Conservative government the Department of Crown Lands in 1905 became the new Department of Lands and Mines.

Problems with the administration of forest resources were deep seated, however. The change of name brought no relief to conflicts of interest. The utilization of wood for pulp manufacture had begun to assume considerable proportions but not all the potential benefits accrued to Ontario. In spite of a ban in 1900 on exports of pulpwood from crown lands, the practice of shipping wood to United States mills for pulping continued. A lack of cooperation between government departments contributed to this situation. Until amendments were made to the Mining Act in 1920, an effective stratagem for exporters was to stake a mining claim on forest land. By this means, in addition to the mineral rights, the company could cut all timber except pine over an area of ten square miles.

Forest conservation as practiced by the government reached a degree of importance during the 1920's, with a well run Forestry Branch under Provincial Forester Edmund John Zavitz, who later became Deputy Minister. The Branch was responsible for reforestation and provided an efficient fire-protection program and surveys. On the other hand, lax administration by the Department and patronage did not encourage good forest management practice by the industries, which had plenty of uncut acreage at their disposal. There was

speculative growth in pulp and paper mills, followed by over-production and financial collapse during the depressed years of the 1930's. Widespread criticism of the Department in 1939 brought an investigation by a Select Committee of the Legislature.

Encumbered by a nineteenth century administrative structure adequate for little more than the collection of revenue, Lands and Forests was seen to be in need of basic administrative change to create an ability to control and assist the forest products industry, which had moved close to insolvency as a result of its own mismanagement and get-rich-quick practices.

Mineral Policy

The early development of Ontario's non-renewable resources presented fewer problems. Up to the 1840's mineral exploration had been subject to little control or guidance. In 1843 the Geological Survey of Canada began to compile geological data. Administration of mining claims in Ontario was transferred from the Crown Lands Department to the Bureau of Mines in 1891, and thence to Lands and Mines in 1905, and to a separate Department of Mines in 1919. Mining was on a small scale until the twentieth century development of gold and silver and later the copper-nickel ores of the Sudbury Basin.

The latter were first refined for their copper content, a concentrate being produced by smelting and shipped to New Jersey for further processing. By 1910 the nickel was becoming more valuable, with two thirds of world supply mined in Sudbury but refined in the United States.

Earlier government concessions to bring in foreign capital were now a matter of regret and both federal and provincial governments sought by pressure to bring nickel refining to Canada. Public opinion became hostile towards Inco and other international companies involved. This was accentuated when the outbreak of war in 1914 demonstrated the strategic implications. Government pressure finally persuaded Inco to open a refinery in 1918, the process being clearly economic in Canada although the company had argued otherwise. Regulations in the Mining Act, covering all minerals except iron ore, thereafter governed the amount of processing which had to be done prior to export. Exemptions could be granted by Order-in-Council.

Environmental Health Hazards

Dangers to public health could not be ignored in Ontario, where, as in other areas around the world, citizens were threatened with typhoid fever outbreaks from contaminated water supplies. As far back as 1884, amendments had been introduced into the provincial Public Health Act to require inspection of public and private water supplies and sewage works through municipal officers of health and sanitary inspectors.

Urbanization continued to spread and, in the absence of modern water purification techniques, the consequences of water contamination became pressing. Under Article IV of the Boundary Waters Treaty of 1909, Canada and the United States agreed on the need to control pollution, and a bacteriological study to determine its extent in boundary waters was set up by the International Joint Commission in 1912. The study confirmed severe contamination of the Detroit and Niagara Rivers, and plans were outlined for its abatement. In the end they came to nothing. Chlorination of public water supplies became the rule and the public health problem diminished. Once the threat to health was removed, as might have been predicted, government concern on both sides of the border faded rapidly.

The government also took action in the field of industrial health, specifically through an amendment to the Mining Act requiring regular medical examinations for miners exposed to dust.

Controlling the Use of Lakes and Rivers

As the forest products industry grew, Ontario waters became more and more heavily used, giving rise to conflicts between users that could not be readily settled by common law. To help to control water use, the Ontario Rivers and Streams Act, 1881, confirmed the right of any person to float logs down a waterway whether or not improvements to assist the movement of logs had been made by others. The Act was influential in confirming provincial rights over natural resources. Federal-Provincial relations were under strain for some years after Confederation as a result of the centralizing interpretation of the British North American Act favored by the courts, particularly the Privy Council in London, which had final power

to interpret Canadian constitutional relations. The federal government held up the Ontario River and Streams Act, evidently intending to disallow it, and referred it to the Privy Council which, in this instance, upheld the provincial law.

Further legislation dealing with the passage of boats and use of water by mills was enacted, and all these related statutes were consolidated in 1927 in the Lakes and Rivers Improvement Act. Although the latter contained a section prohibiting water pollution little use was made of it by the Department of Lands and Forests.

In the 1930's one particular burden of resource misuse produced a response at the local level that came to have considerable significance. The deforestation of southern Ontario had led to damaging floods. In 1931 the Boards of Trade representing municipalities along the Grand River Valley petitioned the Ontario government to help find a solution to variable flow on the river. Not only were spring floods a liability but they were followed in summer by a lack of water to carry away the sewage from towns and farms in the watershed.

After several years delay a survey undertaken by Ontario Hydro and the Lands and Forests Department led, in 1938, to the Grand River Valley Conservation Act authorizing the construction of a dam at Fergus, with federal, provincial and local government sharing in the capital cost of the works. These events foreshadowed post-war developments. The need had been demonstrated for cooperation among municipalities whereby river problems could be dealt with in the context of the river basin as a whole, and a precedent was set for financial assistance from senior government.

Conservation Movements

Although the dominant theme of Ontario's history had so far been one of resource exploitation, there were many instances when individuals and groups sought to further the principles of conservation. The forestry work of Zavitz has already been mentioned.

Some pertinent conservation legislation was put through as early as the first half of the nineteenth century, in the main because sportsmen were alarmed at the growing scarcity of fish and game. But the acts were not enforced with vigour as wildlife

continued to be depleted. Salmon became extinct in the Great Lakes before 1900.

More striking was the successful effort of Alexander Kirkwood of the Crown Lands Department to project the idea of forest preservation for public enjoyment. Through his enthusiasm Algonquin Park was created by legislation in 1893 and Rondeau Park in 1894. There were some precedents to follow as the National Park at Banff had already been set up by the Canadian Government and Yellowstone Park had been established in the United States. In spite of a demonstrated public demand, however, only four more parks were established in the following forty years. The provincial governments of that era were not inclined to expend funds on projects that did not yield direct economic benefit or provide revenue. Some of the best beaches in Ontario passed into private ownership. As late as the 1930's the government disposed of waterfront lots cheaply, with little regard to public access to public waterways.

In the more populated and industrialized United States, the growth of population, of cities, and of industries was bringing changes that could not be ignored. A strong conservation movement, benefitting from the support of President Theodore Roosevelt, was established and spread to this country. A semi-official Canadian Commission of Conservation of private interests with the support of federal and provincial governments, operated from 1909 to 1921. It worked with six main committees: forestry, land, fish and wildlife, water, minerals and fuels, and public health. Urban and rural planning, which has become of so much importance today, likewise aroused the concern of the Commission.

Nevertheless, in spite of its undisputed status, and all the effort that went into the conduct of its affairs, the influence of the Commission on government policy at all levels was limited. This was because natural science and conservation research were not seen as contributing to economic growth. The idea that the protection and control of resources served the purposes of national and provincial development was not appreciated.

After the Commission had been dissolved, its various research functions were taken over by federal government departments. But the important coordinating role whereby these functions together gave support to conservation policies was lost. Genuine

public concern with the environment did not emerge again until the 1940's.

The War and Reconstruction Years to 1949

The Second World War, following on the heels of the depression, was an instrument of radical changes in the Canadian economy. Although provincial expenditures had been restrained by limited financial resources, new policy approaches began to appear in the Forties. This was partly a result of initiatives and experiments underway in other countries and partly a result of planning undertaken in Ottawa in the search for reconstruction policies that might be implemented as soon as the war ended.

The federal government, fearing a slack postwar economy, set up an Advisory Committee on Reconstruction in 1943 to study all areas of economic and social life in Canada. It included sub-committees on natural resources and agriculture.

Recommendations at the National Conference on Reconstruction held in August 1945 laid emphasis on conservation measures and resource survey as part of postwar urban and rural development. Meanwhile, Canadian thinking about conservation received the stimulus of an infusion of novel ideas to which the successive Roosevelt administrations were giving their acknowledgement across the border. The regional development schemes of Mr. Roosevelt and his advisers provided a new thrust to conservation. Even the war itself, though spectacularly wasteful of resources, did bring forward new concepts of resource management that had great influence later.

The new ideas found a response in Ontario. The 1941 Guelph Conference involving a number of groups concerned with conservation called for support of a nation-wide resource conservation plan specifically to:

1. Provide rural employment for returning veterans;
2. Regulate river flows and reduce losses from flood damage;
3. Promote reforestation and prevent soil erosion.

A brief presented to the federal and provincial governments contained proposals for a conservation program with the significant feature that planning units were to be based, not on

municipalities but on watersheds. Federal approval was obtained for a pilot project on the Ganaraska River Basin, northeast of Port Hope, Ontario, for which a comprehensive report was issued in 1943.

The program was taken up speedily by the province, with the establishment in 1944 of the Conservation Branch in the Ontario Department of Planning and Development, charged with organizing conservation work in Southern Ontario. The Conservation Authorities Act, 1946, provided the means by which municipalities were encouraged to coordinate their efforts towards conservation of renewable resources on a watershed basis. The Branch role was to advise, plan and administer grants from the province, and later, in part, from Ottawa.

Most of the early authorities saw flood prevention as the principal goal and grants were available for this purpose and for reforestation. The great strength of the legislation lay in its successful coordination of local groups and three levels of government in the improvement of resources use and protection. Although the Act has served as a model for legislation in other countries, it was not followed up elsewhere in Canada at the time. It may be that, considering climate, topography, population and economic growth, there was no other area with the same serious need of watershed management as Southern Ontario.

As already noted, sewage disposal in Ontario rivers was becoming a problem in Southern Ontario before World War II. From 1926 the Department of Game and Fisheries, and later the Departments of Lands and Forests and Health, had investigated pollution of water bodies by both municipalities and industry and had enforced, intermittently, the relevant sections of the Public Health and the Rivers and Streams Improvement Acts.

After the end of the War more rigorous enforcement became the rule for several years, the record being:

1946	prosecutions	8	convictions	7
1947	"	4	"	2
1948	"	4	"	3

1949	"	1	"	1
1950		No court cases		
1951	"	1	"	1

Court actions cannot have been much of a deterrent. Fines plus costs seldom exceeded \$40, and most of the cases involved small companies.

The post-war period brought water shortage problems in areas using sub-surface water (about half the population). The Department of Mines in 1945 began a ground water survey, and the following year drilling for water became restricted by license—a foretaste of increasing government control of water resources in the next decade. In other resource sectors there were signs of a trend towards increased control and management procedures.

The reorganization of the Department of Lands and Forests in 1941 in response to the findings of the Select Committee had a significant influence on the development of improved forest management. Decision making was delegated to the field to give better opportunity for sound forestry principles to be applied. Improved biological management of fish and game resources—as opposed to the perpetuation of traditional protection and enforcement activities—also came about when the Fish and Game Department was merged with Lands and Forests in 1946.

The Department of Lands and Forests perhaps carried too much tradition to move rapidly towards the idea of planned use of land, although this was being put into practice by the Conservation Authorities. For example, the Annual Report for 1946 goes no further than to state that “some study has been given to the best method of development of lands for recreational, agricultural and other purposes.”

One major policy change introduced in 1941 was the cessation of the indiscriminate land settlement practices of earlier years. In addition, free land grants in the north were henceforth confined to military personnel. After the War few veterans took advantage of this privilege, preferring to make use of assistance provided under the Veterans Land Act.

Long standing criticism of forest policy resulted in the establishment of a Royal Commission under Major General

Kennedy with wide terms of reference to make yet another investigation of the forest operations of the Department. The Commission made note that the history of forest operations in this province with few exceptions had been that of "cut out and get out." Logical and economical development of forest resources had been sacrificed to wasteful operations by the sawmill and pulp and paper companies, inadequately supervised.

As a whole the recommendations were not incompatible with changes already introduced by the 1941 reorganization. A fresh effort had been made to achieve sustained yields in timber cutting and restocking. A new comprehensive forest resources inventory had been given priority from 1946 and was aided by federal funds from 1949 under the Canada Forestry Act. The Ontario Forest Management Act (1947) called for forest industries to inventory timber under their control and to submit annual harvesting plans.

As in past years, however, although its efforts were well meaning and technically sound, the department could still be criticised as being inadequately equipped to handle policy issues, to deal firmly with industry, and enforce legislation, all necessary for good management. Regarding exports of unprocessed pulpwood for example, the Report drew special attention in a comment:

"The obvious intention of the Crown Timber Act is to prohibit the export of unmanufactured wood. The power given to suspend the operation of the manufacturing conditions 'for such period as may seem proper and as to any district or districts which may be defined' is, in my judgment, intended merely as an exception to the dominant policy laid down by the Statute. The exception has now grown more important than the rule and if the present export policy is to be continued it should surely be clearly and explicitly authorized by the Statute itself."

The export of pulpwood, which had been condoned once again during the depression, may have been justified at that time as an employment scheme and a salvage measure to remove over-mature timber, but neither reason applied in 1947. Pulpwood exports had been growing to such an extent that annual cuts on

exporters limits were exceeding the rate for a sustained yield and, in addition, valuable sawlog timber was being shipped across the border for pulping.

The arguments presented to the Commission for and against exporting pulpwood were reminiscent of those applied earlier in relation to nickel ore refining. While the exporters did their best to present a strong case, the Chairman was greatly influenced by the fact that, whereas unprocessed pulpwood exported had a value of about half a cent a pound, when processed the product was valued at least at four cents per pound and possibly several times that amount, the difference being made up largely of wages paid to Canadian labour. Kennedy came down firmly for the proposition that future provincial policy be aimed toward the development of the higher value final products. Following his recommendation, pulpwood exports were gradually reduced.

Resources and Economic Growth: The 1950's

The overriding concern of provincial policy in the 1950's was economic growth.

Premier Leslie Frost's government accepted responsibility for a major role in providing the physical foundations to support industrial and urban development. At the same time, conservation was a philosophy strongly favoured by the Premier and every year, when Treasurer of Ontario, he gave an estimate of expenditures in this field. Provincial funds were available on a generous scale in the form of low interest loans and, to a limited extent, as outright grants. They were applied to reforestation, prevent flood damage, and construct water and sewage works. This was, for its time, a farsighted policy and we reap the benefit today. If a task of the Seventies is to clean up the Ontario environment, the inherent problems of getting that done are not as great as in most other populated regions of the continent.

When, however, conflict between conservation principles and economic development seemed likely, growth and the associated prosperity of a locality took precedence over environmental protection. Specifically this meant that anti-pollution legislation was simply not enforced against industry.

While the Frost government concentrated much of its effort on economic expansion, general expenditures particularly in health and education were not held back. They rose more or less in line with the provincial income. Projects that were strictly for the purpose of conservation, however, were not pushed with the same enthusiasm as those generating an obvious economic pay-off. Park development, although it satisfied the recreational demands of a growing population while producing obvious conservational benefits also, was slow to get started. Programs with no economic gain were likely to encounter apathy not only among the elected but the electorate as well.

A landmark was set up early in the decade in the 1950 Report of the Select Committee on Conservation. To a large extent it dealt with the promotion of good agricultural practice related to soil, drainage, reforestation and demonstration farms. It also emphasized the need for comprehensive conservation programs, flood control schemes, studies of the Great Lakes and the feasibility of widespread use of their waters to serve the growing population.

Written mostly in the spirit of the rural conservationist, the Report did not lay stress on the urban and industrial problem of environmental deterioration. Nevertheless, during the 1950's the government was faced with the need to make decisions with regard to pollution abatement and its potential influence on economic development.

Municipal Water and Sewage Works

One of the most important contributions to expansion of Ontario's social and economic infrastructure in the Fifties took the form of provincial pressure upon local governments to improve their municipal water supplies and sewage facilities.

Although in 1950, most urban municipalities over 1000 population (76 per cent of Ontario's population) had water works, the majority discharged their sewage without treatment, and the same was true of industry. The situation was steadily deteriorating because of a backlog of construction programs resulting from the depression period and the war years, plus increasing population and industrialization. Water supply and sewage disposal were now inadequate in many districts. Shortages of construction materials, inflation and lack of funds

handicapped efforts to remedy these restrictions on the Province's growth. The water shortage was most critical in southwestern Ontario, particularly in the cities of London, Kitchener and Waterloo.

The Ontario Municipal Improvement Act, 1950, was the first attempt to provide a financial incentive in the form of low interest loans to municipalities for the purpose of constructing these facilities. Over the years to 1956, expenditures increased, but the number of works approved for construction grew slowly, and not necessarily where the need was greatest. The Federal Government was urging the Province to improve sewage treatment facilities in the Great Lakes basin to meet the recommendations of the International Joint Commission. A 1950 study had shown that, in contravention of the Boundary Waters Treaty, pollution from the Canadian side of the connecting channels was contaminating the water supply of Detroit and other Michigan localities. Public concern for a more effective program had grown following a survey of the Province sponsored by the Ontario Department of Health under a Federal Government grant.

To provide the initiative hitherto lacking, and where necessary plan for a regional approach, more direct measures by the province appeared necessary. The Ontario Water Resources and Supply Committee was set up in the spring of 1955. Among other matters it was instructed to estimate probable costs and ascertain the best means of financing the necessary works "on a basis that in the long run would be self liquidating". From the deliberations of the Committee came the decision to establish the Ontario Water Resources Commission in 1956.

At that time there was no thought other than the user should pay and that the ultimate financing should fall on the shoulders of the municipalities. Premier Frost, quite adamant that no subsidies could be expected, was in turn denied federal assistance for the sewage works along the connecting waters of the Great Lakes recommended by the IJC report. The Ontario Premier claimed, in correspondence with Mr. St. Laurent, that: "The expenditures required may be beyond the capacity of these municipalities to finance out of their own resources". The financial burden that both Ottawa and Queen's Park were anxious to avoid subsidizing directly was indeed a heavy one,

estimated by the Committee at \$1.1 billion for water projects and \$1.3 billion for sewage works across the province over the 20 years to 1975.

Under the Ontario Water Resources Commission Act, which was revised and broadened in 1957, direct agreements could be made with municipalities providing for the Commission to assume responsibility for design, construction, operation and financing of water supply and sewage works, with municipalities paying for the projects over 30 years at low interest rates.

By 1960, pipelines from Lake Erie laid through a joint OWRC-municipalities project had relieved the water shortage in Essex County, and other programs encouraged financially or through technical assistance were completed or underway. Recognizing the limitation of ground water supplies, Commission policy was to favour pipeline systems from the Great Lakes.

Towards the Control and Management of Resources

The need to control and manage water supplies as Ontario grew in population and industrial capacity, and to provide for sewage disposal, had brought about the development of a new policy field. Other resources demanded no less attention. Programs were required to encourage the management of land, mineral reserves, and forest for the economic and social benefit of the province, not merely to exploit their revenue-raising potential.

The multi-use concept of land became established during the Fifties in meeting problems of watershed conservation. Controls over land use became gradually tighter as the tradition that land was first and foremost a means of settlement began to be replaced. The new concept saw land as having many potential uses. Planning and capable management were essential to maximize the potential economic benefits to be gained.

The new policy, as it came to bear on the workings of the Department of Lands and Forests, evolved slowly and in piecemeal fashion. This was not because of a shortage of technical know-how in classifying land, but it reflected the problem of breaking with established ideas, and the political difficulties of instituting long range and comprehensive planning concepts. One of the early benefits from land planning was, however, the long needed development of parks.

Two new parks had been established in 1944 in northwest Ontario but, as before the war, the centres of population remained singularly ill served. The Conservation Authorities, being themselves a product of the new outlook, greatly favoured the allocation of conservation areas to park use. Considering their general location in southern Ontario, this would have been particularly valuable to serve urban needs. A multi-purpose scheme including recreational land was put forward by the Humber (Metro Toronto) Authority in 1949, but it was rejected by Queen's Park.

Nevertheless, no more than three or four years later, it had become evident to the Government that the growing population was bringing with it this novel (for Ontario) social problem, and demand for public parks could be ignored no longer.

The Conservation Authorities Act was amended in 1954 to encourage recreational use of Authorities land. Hurricane Hazel, in that year, convinced the Ontario Government of the folly of allowing encroachments on flood plains. The acquisition of such areas in the years following helped provide room for expansion.

Regional foresters had been sent to tour U.S. parks looking for ideas, and in 1954 a new Provincial Parks Act was passed to draw all existing acts relating to parks under one department. The minister to be responsible was not at first identified and it seems that no one was eager for the job. The resource departments had in earlier days been a main source of provincial revenue, and although that time had passed, it was likely that the resource ministers did not wish to increase expenditures far out of line. Parks would certainly be a heavy capital expense and probably an operating expense as well.

As a result of pressure at cabinet level, the Department of Lands and Forests established a new Parks Branch and took over responsibility for all provincial parks from 1958. The number of established parks grew from eight in 1954 to more than forty by 1960.

Following up the new policy, departmental regulations from 1954 controlled the sale of Crown land for summer resorts and agricultural purposes. Recreational planning committees, made up of representatives from the Department and local people, were established for northern districts in 1956 and for the south the following year.

The demand for cottage lots increased during the Fifties. In 1959 demand exceeded supply and tenders began to be invited. Control over cottage lot development was improved through an amendment to the Public Land Act in 1958, requiring Crown lands to be zoned for recreational purposes before sale. A later amendment in 1962 required at least twenty-five per cent of the total water frontage should be reserved for public use. Unofficially, some such provision had been in effect for a number of years before that time.

By 1959 a new emphasis on preservation of a natural environment came about with the passing of the Wilderness Areas Act. Outside the Provincial Park system extensive facilities were developed along the border of the Seaway.

To coordinate policy, the Ontario Parks Integration Board was established by statute in 1956. In the first instance the Board was to apply revenues such as water rentals to park development, but it turned out to become merely a review agency for new parkland acquisitions.

Old traditions die hard, and throughout the Fifties the desirability of settlement on the agricultural lands of the north still came up from time to time in official statements. Premier Frost's 1958 Budget Speech included a program to improve access roads to the north which would "make possible the settlement of potentially valuable agricultural land". Viability of such a policy was again implied in the 1959 Speech, and not until the early 1960's did the idea apparently die away completely.

By 1950 the province was actively controlling settlement on agricultural land, screening applicants to ensure their seriousness of interest. Some degree of coordination of land use plans came about through the establishment of the Private Lands Liaison Committee by Order-in-Council in 1959. Lands and Forests and the Department of Agriculture coordinated administrative procedure and planning in respect to land for agriculture.

Mineral Reserves

A new service by the Department of Mines to the industry began in 1951 with a program of road construction to open up new areas for prospecting and development. The benefits

conferred extended beyond mining, for areas of forest and vacation land were opened up and hitherto isolated communities were given access to the rest of the province. A broader based program developed from 1954 with other departments becoming involved in decisions concerning routes and priorities. From 1959 costs were shared by the federal government under the "Roads to Resources" program of the Diefenbaker government. In that year both levels of government also cooperated in an aerial survey of northwestern Ontario, at that time relatively little known to prospectors.

The new policies of land development arising in the Fifties were not long in bringing about a change in the extent of tenure of mineral claims. Originally, the owner had all surface rights, then subsequently pine trees and later all species of trees had been reserved to the Crown. The Mining Act was amended in 1955 to permit the right to forestry operations on mining land and finally in 1957, in a new section, the minister was empowered to reserve all surface rights not essential for efficient exploration and development of the mine.

Prospecting in provincial parks was prohibited by regulation from 1956 and the position was upheld when the Government failed to adopt a recommendation of the Public Lands Investigation Committee in 1959 calling for an "aggressive policy of geological and geographical examination of Quetico, Lake Superior, Algonquin and Sibley Provincial Parks . . ." This was an early example of economic interests relegated to second place.

Forests

The Department of Lands and Forests continued to make progress towards good forest management practices. By 1954, an essential first step, the forest resources inventory had been completed. According to the White Paper, *Suggestions for a Program of Renewable Resources Development*, presented to the Legislature in that year the inventory provided the base for plans to integrate:

"the many and varying uses of land for forests and recreation with their use for wildlife; the use of streams and lakes for hydro developments with their use for log driving and fishery

management. In short it makes it possible to reconcile the complex relationships between often-conflicting land and water uses."

The government had come a long way in accepting the new philosophies. The report depicted a difficult future for the "waning saw-milling industry" and for the pulp and paper mills (at that time still utilizing spruce almost exclusively) through the depletion of timber supplies. Certain accessible areas and more favoured species had been overcut. The fact that the forest reserves as a whole had been undercut signified that an increasing volume of over-mature timber was going to waste. Without careful attention future shortages were a possibility.

It did not help however that the forest industry was still far removed from simple multi-use concepts. For example, most timber of sawlog size was located on pulp and paper concessions, but as wood for pulp in general produced a relatively higher value per unit it was difficult to get it diverted from that specific purpose.

Under the Forest Management Act, land was gradually coming under management schemes. The Department's own management unit at Petawawa was the first to cover an area of commercially operable timber—previous plans put into effect had been in the nature of rescue operations to save stands that had suffered from past depredations. Cutting at Petawawa by local industries was permitted only under sustained yield practice. To this end, also, the Department underwent another reorganization in 1957 bringing all forest management functions together with renewed emphasis on silviculture. A major program was begun to reclaim cutover and burned northern areas.

Water

It was during the Fifties that the province first took a serious view of the threat of pollution to its air and water resources. Measures that could influence industrial development adversely were avoided nevertheless.

In 1950, as had been the rule since the nineteenth century, the Department of Health through the Public Health Act supervised all water works, sewage works and sources of public water

supply. The Health Act prohibited water pollution where a danger to health would result. The maximum penalty was \$100. The Lakes and River Improvement Act prohibited the dumping into streams of waste from forestry operations.

The Departments of Health and Lands and Forests continued their investigations of lake and river pollution, coordination of which was assisted from 1952 by the formation of a Pollution Control Board. Chaired by a representative of the Department of Health, the Board included members from Lands and Forests, Planning and Development, Agriculture, Mines, and Municipal Affairs. General objectives were proposed for the control of both municipal and industrial water pollution. A distinction between the two did not seem to be emphasized, both being equally culpable. As a rule, work in southern Ontario was tied in closely with Health while Lands and Forests looked after the north.

The enforcement activity that had shown signs of strengthening in the late 1940's now became less emphasized in favour of an approach that sought cooperation. A major hurdle was recognized to be the fact that there was not yet awareness of a real need for pollution abatement. Furthermore, the unsuccessful private action against the Kalamazoo Vegetable Parchment Company made it doubly clear that the government had no intention of enforcing the law should economic hardship result to industry or a dependent locality.

The KVP Kraft mill had been opened in 1946 on the Spanish River at Espanola, the site of an old groundwood mill abandoned during the depression. Local tourist camp owners and commercial fishermen downstream, whose business was affected by gross pollution of the river, initiated a law suit and obtained damages and an injunction to close the plant. The government proceeded to amend the Lakes and Rivers Improvement Act, to provide for a court to weigh the economic advantages of the polluting mill to its locality, against the alleged injury or damage. The verdict, however, was upheld by the Supreme Court of Canada and the Privy Council in London. Finally, to save the mill from closure, the government had to resort in April 1950, to the extreme of putting through a special bill, the KVP Act, whereby the injunction was dissolved.

Enforcement of legislation now became a "last resort" action, withheld until approval of the Pollution Control Board was given. It was agreed that charges would be laid only in cases in which other means of bringing about reasonable improvement of waste disposal practices had failed, and when requests for improved facilities were justified and reasonable.

It was at this stage that, as already outlined, the Ontario Water Resources and Supply Committee was set up with terms of reference indicating that the province saw a need for tighter controls and enforcement of legislation. The Committee was given the responsibility to examine present and prospective needs for an integrated provincial water supply; to report on the best means of provincial control over water resources and water pollution; and to ascertain the best type of administrative organization for these purposes.

A major issue was whether or not the Health Department should retain its leading role, which reflected a primary concern for public health and provision of necessary supplies of high quality water. It seemed likely that, as long as this attitude prevailed, only token efforts would be made to prevent water bodies in general suffering progressive degeneration through neglect. The newer concepts of water management looked to the development of multi-use water sources for domestic, industrial and recreational purposes. No one use, even sewage and waste disposal, should preclude others.

The Acts of 1956 and 1957 gave the Ontario Water Resources Commission (OWRC), reporting through the Minister of Public Works, the responsibility of supervising and investigating the condition of all Ontario bodies of surface and ground waters. Staff from the Health Department's Division of Sanitary Engineering was taken over to control municipal and industrial water supplies and sewage. Health retained responsibility with respect to private water supplies and sewage disposal.

The Act prohibited discharge of polluting materials into "any well, lake, river, pond, spring, stream or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water . . ." A penalty of \$1000 maximum or up to one year imprisonment or both was provided for.

The new Commission had gone to work with a will in promoting the development and integration of municipal services under the Act, and radical changes compatible with good management practice were coming about in that area. Yet although the new legislation had more teeth than the old, and the commissioners saw a need for strong enforcement, government reluctance to impose controls on industry showed little change and prosecutions remained few and far between.

An Industrial Wastes Branch was however, established in the Division of Laboratories and Research specifically to investigate industrial problems, continue surveys and encourage industries to reduce their waste load by operational changes. The Pollution Control Board continued as an inter-departmental agency under the name of the Water and Pollution Technical Advisory Committee.

Control of Air Quality

The problems associated with air pollution and concern in these matters have undergone many changes since the early years of the century when coal was the most important fuel. In England, Europe and North America, dirt, soot, sulphur dioxide and other vile smelling and dangerous chemicals poured from the chimneys of industrial plants and power stations, apartments, office blocks and households.

At that time, the city dweller was seldom prone to complain about the unpleasant environment where he dwelt and worked, and fatalistically saw it all as an unavoidable penalty of the same economic progress that provided his job. It was only when, as in Donora, Pennsylvania, in 1948 and London, England, in December 1952, air pollution episodes were clearly and dramatically associated with increased morbidity and mortality statistics, that the danger to health and resulting social and economic cost began to be understood. Also, shortly after the war, it was recognized in the United States that the Los Angeles area suffered from a special air pollution problem related to heavy automobile density and the characteristic meteorological conditions of that region.

Although Ontario cities also suffered from contamination of the atmosphere, wide use of fuel oil and the availability of electric power from hydro-electric plants meant the degree of pollution

was not as severe as had been experienced elsewhere. One problem area was the Sudbury basin with its sulphur dioxide fumes from the ore processing industries. Local farmers were protected from loss through crop damage by the Damage from Fumes Arbitration Act. On the other hand the companies protected themselves by easements, from claims for property damage by urban dwellers.

A brief comment in the 1950 Annual Report of the Department of Health drew attention to the smog incidents that were becoming increasingly prevalent in the United States and other countries and saw a potential problem in Ontario. The provincial government, reasonably enough given its preoccupation with economic growth, was very likely reluctant to impose costs on industry by strict controls on smoke emission. Under the Public Health Act of that time, court action could be taken to abate odours, smoke or dust if a hazard to health. In addition, an amendment to the Municipal Act in 1949 authorized cities with populations exceeding 100,000 to pass by-laws regulating or prohibiting smoke and fumes, but prosecutions were rare.

Several years later, when the United Kingdom was debating the Clean Air Act, the Ontario Government established a Select Committee on Air Pollution and Smoke Control, which reported in 1957. An Air Pollution Control Commission was recommended to revise existing legislation (criticised as being out of date) and to enforce a new Act. The report did not perhaps give adequate attention to the problems of growth and technical change. Some of the recommendations turned out to be near-sighted—for example, emphasis laid on controlling pollution from steam locomotives and from the vessels soon to be plying the St. Lawrence Seaway.

The new Air Pollution Control Act, 1958, administered by the Department of Health was not notably stronger than earlier legislation. Responsibility remained with the municipalities on a permissive basis. Industry was protected to an extent insofar as the Act did not apply to operations designated in the Damage by Fumes Arbitration Act. The Province played no more than a technical and advisory role, loaning equipment, standardizing methods and providing field services through the Air Pollution Branch of the Division of Industrial Hygiene.

The Multi-Use of Resources

Ontario had come to relate good conservation practice with economic growth, and this concept was stamped with approval by the Resources for Tomorrow Conference held in Montreal in 1961. The Conference put an end to the long standing view that Canada's renewable resources (land, water, forest and wildlife) were inexhaustible. Such a view was no longer tenable, and public opinion formed rapidly in support of rational conservation policies.

The Conference gave recognition to a need for more direct government involvement in resource management, and to the importance of planning on a regional scale to optimize resource use. The Sixties saw the province putting this philosophy to work. A foundation of experience had, of course, already been gained with the Ontario Water Resources Commission and the conservation authorities. Multi-use philosophy was endorsed. Yet despite the spread of conservation knowledge and much good conservation practice in the 1950's, Ontario continued to lack a comprehensive framework for natural resource management. Policy and administration remained disjointed. The issue could not be evaded. Comprehensive resource policies, coordinated

programs and control legislation plus the power to enforce it, were essential for proper resource development. Progress was, however, slow until the institutional changes of the 1970's.

The 1960's were a decade of broadening socio-economic policies in Ontario, and in many other jurisdictions. The extent to which the use of resources might be related to various social and economic ends, gripped the public imagination. The best example of the new outlook was the multi-use development of river basins by the Conservation Authorities. During the 1950's outdoor recreation facilities and nature reserves on authority land had begun to meet with government approval, and quickly became a most important feature in the authority program.

Multi-use programs involving commercial users such as the forest, mineral, and agriculture industries, however, had a potential for conflict. To bring in another complexity, although plans for Crown lands raised no serious political stumbling-blocks, planning applied to private land was politically very sensitive, particularly in urban localities. Nevertheless the province saw fit gradually to extend its planning role and land planning, from being an academic exercise, became the contentious issue of municipal and regional development that it is today.

Land-Use Planning

The techniques for determining land type and capability had evolved over a period of many years, and by the 1960's Ontario was largely covered by federal-provincial surveys.

The first attempt to develop a land-use plan of any comprehensiveness was in the Kapuskasing area. The general aim of this 1960 work was to develop an integrated plan which would cover all the renewable natural resources in the Clay Belt, and illustrate the principles of good farm, forest and wildlife management.

At the same time a Land-Use Planning Section was established in the Surveys Division of the Department of Lands and Forests. Among the duties assigned to this unit was the work of defining the status of land-use planning in the Department in terms of legislation, regulation and policy statements. Each forest district was now called upon to submit a land-use plan on the basis of a land-planning guide. The survey covered northern

and such southern areas as the Tweed district. Although the Department had jurisdiction over Crown lands only, the question of private land-use in the south was not ignored.

These plans, although not employed in any comprehensive fashion, were applied to Crown land use for agriculture. In addition, the power to zone land for recreational purpose was incorporated in over-all land use legislation.

A major benefit of the soil surveys had been the demonstration that land good for forest was not necessarily good for crops, and the policies that had led to ill-advised settlement were at last buried in history.

Administrative procedures and the planning of farm land were coordinated through the Private Lands Liaison Committee (made up of representatives from Lands and Forests and Agriculture). A more specialized body, set up in 1960-61, was the Public Agricultural Land Committee. It recommended new areas suitable for farming and considered applications from potential farmers.

The Rural Problem

In comparison with the booming towns and cities, rural communities stagnated in the post-war years, and small marginal farms were steadily going out of business. This was primarily the result of high costs and low farm prices. The social dislocation was accentuated by the drain of rural workers to the urban centres as farms became mechanized. Both senior levels of government were under public pressure to become involved in rehabilitation measures.

Ottawa had been providing the Prairie Provinces with help in meeting demands for relief and rehabilitation of this kind since 1935, so that the Agricultural Rehabilitation and Development Act, (proclaimed in 1961) was simply a recognition of the national character of the problem. The legislation led to federal-provincial agreements for financial aid in 1962, 1965 and 1970.

In a number of provinces ARDA served to inspire examples of comprehensive regional development, but in Ontario Queen's Park entered into the agreements with caution, tending to expand or accelerate projects already in hand rather than to risk

a distortion of current priorities. The initial emphasis in Ontario was on alternative land use programs particularly reforestation. The Conservation Authorities also made use of ARDA funds to facilitate soil and water conservation projects.

The principle of grass roots animation underlay the whole ARDA program. To be realistic, this called for the organization of a field staff orientated towards rural rehabilitation. Originally, the Department of Agriculture employed the existing "ag reps" to do this job, and not unexpectedly contact was hard to make with the rural poor. The endeavour to set up ARDA county committees met only with partial success. After 1965 the Department employed rural development staff.

The second agreement reflected growing political pressure for greater provincial involvement, and a farm consolidation program was begun in earnest. By 1970 a total of 1,240 farms (175,000 acres) had been acquired and leased to experienced farmers. More recently the federal government has moved to take a more direct role, in particular to consolidate farms through loans from the Farm Credit Corporation.

When dealing with the shift of land from agriculture to urban development, political considerations have been the major constraint. In absolute figures, losses are not startling. The 1969 report of the Special Committee on Farm Income in Ontario, "The Challenge of Abundance", projected a farm land decline from 17.6 million acres (1966) to 16.8 million acres (1981). The impact upon southern Ontario specifically, however, is much more severe, a fact that was first documented in the Resources for Tomorrow Conference in 1961.

Concern has concentrated on the loss of such areas as the Niagara Fruit region and class 1 and 2 agricultural land in general. The Ministry of Agriculture and Food has used its influence informally, wherever possible, to spare prime agricultural land from conversion to highway, airport or urban purposes. In the past however, other ministries as well as private developers have given little thought to the impact of their activities on agriculture. Land controls were announced finally in 1973, and they were designed to regulate land use directly.

Recreational Land

The emphasis on social benefits in the 1960's brought park development policy to the forefront. For example, an announcement was made in the 1963 Budget Speech that a 20-year, \$200 million program was to be launched for the acquisition of land for parks, especially shoreline and beach properties. The spending levels up to 1970 were only about half that envisaged but lately they have been increased.

Park development was left in the hands of a number of departments, commissions and agencies coordinated through the 1960's by the Ontario Parks Integration Board. The Department of Lands and Forests, the Conservation Authorities, the St. Lawrence and Niagara Parks Commissions, and the Department of Highways were all involved. In 1962 the Conservation Authorities Branch moved from the Planning and Development department to Lands and Forests. This came to be recognized as an error, because, apparently, their philosophies did not match and the union was unhappy. The Branch moved again to the new Department of Energy and Natural Resources in 1964.

The municipalities participated more directly in park development after 1960 when the Parks Assistance Act was proclaimed. It provided matching grants to municipalities for park purposes. In 1971 joint federal-provincial planning began for the first federal park of significant size in Ontario—Park Puckaskwa.

The new Cabinet structure, as it emerged in 1971-72, realigned the required support staffs and this included the decision to discontinue the Ontario Parks Integration Board. This left policy development on parks within the Ministry of Natural Resources and the resources development policy field. A basis was being established for integrated recreational planning in Ontario through the Recreation Liaison Committee and the Tourism and Outdoor Recreation Plan Study. Examples of regional planning are the Northern Georgian Bay Recreation Reserve Plan and the Canada-Ontario Rideau-Trent-Severn Waterway Study.

In 1973 a policy was declared to plan and control over one million acres of Niagara Escarpment lands. At the same time a parkway belt system from Dundas to Oshawa was announced. It will provide for the orderly channelling of the essential support

for utilities serving urban southern Ontario, while affording opportunities for the preservation of open space and separation of industrial urban communities.

A weakness in provincial parks legislation shows up in comparison with its federal counterpart. Whereas (under the National Parks Act), “the National Parks shall be maintained and made use of so as to leave them unimpaired for the employment of future generations”, (RSC 1970, c.189, s.4), the Provincial Parks Act grants authority to the Cabinet “to increase or decrease the area of any provincial park and may delimit any provincial park” (RSO 1970, c.371, s.3.2. Private legal efforts to bring an end to sand removal from Sandbanks Provincial Park in Prince Edward County were handicapped by this section of the Act. In another instance, to facilitate development at Douglas Point, the province was, under the Act, entitled to take over Inverhuron Park. Economic factors have taken precedence over public enjoyment.

Loss of recreational land is a serious matter. There has been criticism on a number of points that, despite more aggressive policies, the recreational needs and potential of Ontario are not being dealt with adequately. A fine summer day finds parks overcrowded in the vicinity of Toronto. There is agitation that private shorelines, sometimes held by foreign residents, should be turned over to public use. Enforcement of pollution control regulations to preserve the water quality of northern lakes has had the effect of reducing the availability of land for cottages. And conservation groups, which have approved the designation of Quetico as a wilderness park, naturally have deplored continued multi-use of the forest in Algonquin.

Forest Land

The pros and cons of the use of Ontario's forests, have been the subject of argument for almost 200 years. Among all renewable resources none has been involved in the controversies of public policy as long as have the forests. Policies to do with forests because of such a long period of gestation, may be instructive in regard to other resources and to resource policy in general.

The key issue is the allocation, between government and the private sector of responsibility for forest management. The 1950's had been a time for developing long term plans by the

Department of Lands and Forests. By an amendment to the Timber Act, the responsibility for implementing the sustained yield programs on licensed land had been placed on the pulp and paper and logging industries themselves.

Two hundred and five management units were set up, and long term planning that would embrace Crown units, company units and agreement forests was begun, setting out volume and location of cutting and programs for regeneration.

Unfortunately an old story was repeated. There were no adequate enforcement measures. The companies achieved little. Faced with an increasing backlog of cut-over areas requiring treatment, the Department took control and accepted most of the financial responsibility from 1963 on.

Until the end of the Sixties, the pulp and paper companies retained responsibility for inventory within their limits. This was then relinquished, and as a result the Department was provided with means to make more adequate judgments on management plans.

For half a century enabling legislation has been in force to permit municipalities and conservation authorities to place abandoned and submarginal lands, to which they had acquired title, under agreement with the Department of Lands and Forests, which could undertake to plant and manage the properties for a specified period of time. The undertakings have in fact proved commercially profitable, and those close to population centres have tremendous value as recreational areas.

Owners of private land have in the past been able to purchase planting stock for forestry purposes from government nurseries at nominal prices and receive free professional advice. In 1966, in recognition of limited future supplies of hardwoods from southern Ontario, the management efforts of the province were further extended under the Privately Owned Woodlands Act. This provided that most of the expense and all of the direction of planting and improvement would be taken over, at the owner's discretion, by the Department.

In Ontario, therefore, while the utilization of timber crops, the processing of forest products and the distribution of commodities of wood to market have been functions of private enterprise, the province has taken most of the responsibility—

including financing—for the protection and managed development of the forest resource on both Crown and private land. A precedent has been set, should such a degree of government involvement be thought desirable in another resource area.

Minerals and Land Use

The ban on mining in provincial parks resulted in a more thorough examination of mineral potential before lands were designated for recreational purposes. For example, just prior to its being declared a park, Polar Bear Provincial Park's boundaries were changed to exclude new mining deposits discovered in the vicinity.

In 1968, an amendment to the Mining Act provided for 21-year leases renewable at the discretion of the Minister. This replaced renewable 10-year leases previously given for mineral rights on lands covered by provincial forests and patents which had been given by the Department on other lands. These leases had been renewed virtually on an automatic basis. For the most part, the development in land tenure policy over the period, while expanding the potential for multiple use of lands, did not significantly alter the security of land tenure, which is necessary to the mining industry.

Following the decision of the federal government not to renew the Roads to Resources Agreement, the province continued the program. During the late Sixties, the interdepartmental committee was renamed the Northern Ontario Roads to Resources Committee and later the Northern Ontario Resources Transportation Committee. In 1969, the annual allocation rose to \$2,500,000 and in 1970 to \$5,000,000. More than 1,200 miles of new roads were constructed under this program during the period from 1955 to 1971.

Regulation of Pits and Quarries

The location of Ontario's principal mines in the north, away from population centres, has kept down controversy over the damage they may cause to the environment. The pits and quarries from which construction materials are extracted are, however, mostly located in southern settled areas, frequently close to urban districts and recreational areas. Conflict between quarry owners and local residents has been a feature of Ontario life for several decades.

Control over land use for quarrying was, until the end of the 1960's, invested in the municipalities, but for a number of reasons by-laws proved difficult to enforce. At the same time the extractive industries complained of variable operating standards from one municipality to another. To prevent destruction of the escarpment landscape and its amenities, the Niagara Escarpment Protection Act was passed in 1970 and the broader Pits and Quarries Act the following year.

Control was taken over by the Province. Quarrying was banned on the escarpment and a virtual moratorium placed on licenses for new quarries elsewhere. Strict operating conditions are now enforced but all problems are by no means solved. Non-conforming operations—licensed before the Act—are a particular source of friction. Furthermore, public tolerance of the dirt, noise and other aggravations seems to get less and less, even in locations where quarrying has been traditional.

Land Acquisition and Expropriation

The fulfillment of land-use programs may require the acquisition of private land. For this purpose, in 1963, the Land Acquisition Section was created in the Department of Lands and Forests and it has served to administer recommendations and applications from districts where private land is needed for public access, park development and the like. In 1966 the Land-Use Planning Section and the above were merged.

In fact, the number of provincial and municipal agencies, boards, commissions, and departments with authority to acquire land was formerly in the low thousands. This number has been reduced to some extent through the amalgamation of school boards, but remains high today.

The principal acquiring agencies are those whose programs involve substantial land needs, like highway construction, land assemblies (OHC), parks, farm consolidation (ARDA Directorate), and public works in general. Land is also acquired for school, university, water distribution and sewage disposal, and hydro distribution purposes by the relevant provincial commissions. The amount of land acquired has depended on the scope of the programs with figures very difficult to obtain for the earlier years. Some expenditure ranges from recent years are as follows:

	Million Dollars
Public Works	2 - 6
Highways	8 - 52
Provincial Parks	1.7 - 2.7
Housing	23 - 37
ARDA Program	2 - 4

In the past, land acquisition was marked by an almost complete decentralization of authority to provincial organizations, with no overall coordination. When an agency wanted land, it would simply include the land as part of its program and purchase it with no reference to other provincial programs. The only major exception to this lack of coordination was the Ontario Parks Integration Board, which approved purchases of land for parks, and thus provided a funnel through which several different acquisition programs operated.

The Ontario Department of Public Works has been the acquisition agent for public works involving property development and for the Department of Lands and Forests. Excluded from its jurisdiction, however, have been the major purchases of land for highways, power lines, and other rights of way, housing, conservation authorities and ARDA land (although the Department of Public Works has acquired some land for Lands and Forests using ARDA funds). Therefore, the acquisition procedures and approval controls have developed in as many ways as there are agencies.

In connection with regional development planning a need is appearing for land acquisition on a more coordinated basis. For example, an interdepartmental committee and then a task force have reported on air rights and multiple use and joint development of transportation corridors. Estimates were made in 1969-70 on the costs of acquiring land for the parkway belt around Toronto. The provincial land bank program was announced in the 1971 Budget Speech, although the proposed budget of \$20 million was subsequently transferred to other land acquisition programs. The Haldimand-Norfolk Study recommended the creation of a new urban centre (requiring large scale land acquisition) near the proposed Nanticoke industrial development in southwestern Ontario.

These activities are indications of an emerging provincial policy with respect to land assembly. The province is still following an

ad hoc policy of acquiring land for special purposes as the need arises as, for example, in the announced programs to acquire land north of Pickering adjacent to the proposed new Toronto International Airport and in certain areas on the Niagara Escarpment.

The policy for the expropriation of land has shifted since 1950. At first large-scale land assembly was carried out primarily through buying quietly without disclosing the purchaser and with a minimum use of expropriation. The former Department of Highways, on the other hand, used expropriation as a normal procedure for highway land acquisition. The later large block assemblies by the Ontario Housing Corporation were purchased through buying quietly without expropriation. Now OHC is beginning to review proposed acquisition with affected municipalities and other provincial departments. Most other agencies and departments have purchased land directly through their own or Department of Public Work's staff without resort to expropriation unless necessary.

Terms of the Expropriation Act of 1969 were substantially influenced by a change in public attitudes reflected by the McRuer Report, which stated that "the power to expropriate land has been conferred in Ontario with reckless and unnecessary liberality without sufficient control over the exercise of the power "(p.980). The Act guaranteed the individual the right to a public hearing as well as a public review of the need for expropriation. Provincial expropriation policy has therefore evolved from an autonomous provincial prerogative to one of more consideration of individual rights.

Private Ownership

A separate consideration with respect to land acquisition is the evolving provincial policy toward private ownership of land. Senior officials have commented that there has been a change in the public's attitude to private ownership, similar to the growth in popularity of conservation as opposed to unchecked development. Some concrete evidence of change in provincial policy may be seen in these examples:

- A decision in 1971 provides for leasing Crown land for summer cottages rather than the disposal of it through sale;

- OHC has shifted toward acquiring land for urban development and working directly with developers, thus reducing the speculators' profit;
- More active consideration is given to various land use controls, partial acquisition through easement, and the regulation of activities on the land.

Balanced against these policies to reduce the effect of the right of private ownership, has been the aforesited 1969 Expropriation Act, which provides more assurance to the individual that the takeover of his private land for public purposes will have guarantees to protect him from abuse by the province.

An emerging issue is the ownership of land by non-Canadians. Other than the preference for leasing Crown land to Canadians, Ontario has not yet developed as strong a policy in this regard as some other provinces (e.g. Prince Edward Island). While both the amount of land owned by foreigners and the use of recreation land by foreigners are significant, the proportion is still relatively small. However, the issue probably will be solved largely through land use controls and planning, as Premier Davis observed at the 1972 provincial premiers' meeting in Halifax, rather than by any overt policy with respect to foreigners.

CHAPTER IV

Protecting the Environment

Through the first two decades of the post-war period public attention was focussed on economic development and growth. The effect that this was having on the province's environment sparked little interest and the specialists had the problem to themselves. Even in such a widely reported controversy as the manner of development of London's water supply, a subject of dispute from 1954 to 1964, direct involvement by the citizens was minimal. Suggestions at the time for a referendum were opposed on the ground that the issue was too technical and complex.

The Ontario government, through its conservation measures and input into infra-structure development in the province, had shown a concern for the environment—the lakes and rivers in particular. The leading role it played, compared to other provinces, may be judged by reference to the background papers of the Canadian Council of Resource Ministers' *Conference on Pollution and our Environment* in 1966. For example, while speakers from the Province of Quebec could do little more than generalize about possibilities, those from Ontario were able to cite accomplishments and draw on an acquired experience.

Participants at that national conference emphasized a need to arouse public interest; yet a year later, at the 1967 Ontario Conference on Pollution Control, a main theme was the need to meet a public demand for knowledge of what was happening. The Ontario citizen was losing his apathy. He became aware of anti-pollution organizations and began to join them. Incidents reported from other industrialized countries began to look to him as more and more likely to be repeated in the near future in downtown Toronto or Hamilton. Gradually he began to view unwelcome changes in Ontario's environment itself with a more critical eye.

The relatively small number of politicians, professionals and conservationists who had prompted and supported measures for environmental protection could not hope to contain the field to themselves much longer. Henceforth their responsibility would be shared and policies moulded by public opinion, and the public in turn was influenced strongly by Pollution Probe and like bodies. Future development programs and projects increasingly would be subject to "adequate regard for environmental considerations".

The Environmentalist Movement

In August 1970 President Nixon presented a report to the United States Congress on his nation's environment. "It represents", he said, "the first time in the history of nations that a people has paused, consciously and systematically, to take comprehensive stock of the quality of its surroundings".

Actually stock-takings of this kind were going on all over the world because environmental deterioration had become of global significance. The man in the street, who had not worried too much about pollution in the local creek or about where his garbage went, took notice when the local anti-pollution society, as the spokesman of a growing international environmentalist movement, told him that he was endangered by the growing production and use of chemicals in the newer industrial and agricultural technologies.

Certain chemical contaminants, doubly a menace because they were persistent, suddenly made the problems lumped together under the term "pollution" appear to be a greater threat to health than had been supposed. Dispersing through the atmosphere, the oceans and bodies of fresh water across the face of

the earth, they offered a hazard to all forms of life possibly as dangerous as radioactive fallout. Rachel Carson's popular book, *Silent Spring*, was an important element in sparking public activity, in response to what many of the more fervent environmentalists claimed to be an "ecological crisis" or "eco-catastrophe".

The DDT Controversy in Ontario

The province had an above average record in pollution abatement, and was clearly a minor contributor to global problems. However, perhaps because there had already been a willingness to respond to the pollution question, the misuse of dangerous chemicals, specifically the chlorinated hydrocarbon pesticide DDT, became a fierce public issue.

For many years Ontario legislation under the Mining Act, the Public Health Act and the Silicosis Act (1950) sought to protect industrial and agricultural workers from dust and other dangerous substances met with in their employment. Controls were now demanded to protect all living things from the over-use and spread of these and other contaminants.

DDT was first employed in Canada in 1943 against flies and mosquitoes, and it was tested by the Ontario Department of Lands and Forests over 1944-45 for insect control. Forest workers recognized that other forms of life could be endangered. For economic reasons, at the time, the use of DDT in Ontario forests was limited. From 1947 on, however, a recommendation by the Ontario Department of Agriculture brought it into wider use on the farm. Problems of milk contamination were noted by the Department of Health in 1950 and following the establishment of tolerance levels in food by the Federal Food and Drug Directorate, an amendment to the Public Health Act in 1954 prohibited DDT use in such a way as to contaminate food and drink. In any event, signs of pest resistance appeared and from 1955 usage declined as growers switched to alternatives which, unfortunately, included a number of other chlorinated hydrocarbons—aldrin, dieldrin and heptachlor.

Pest control was becoming a complex technology and a more detailed Pesticides Act (1956) replaced those sections in the Public Health Act regulating the use of "toxic and noxious" substances in agriculture. Continuing evidence for the accumula-

tion of pesticide residues in foodstuffs brought a 1964 amendment prohibiting the use of DDT or associated chemicals in animal buildings, pasture or forage.

In 1966 a Pesticides Residue Testing Laboratory was established at Guelph under the Department of Agriculture and Foods. The following year saw the organization of a Pesticides Advisory Board (later Committee) made up of representatives from government and the agricultural service industries.

To outline these events is to make the point that the Ontario government could show evidence of responsible control over DDT and pesticides of similar type, bearing in mind agricultural needs. Only in tobacco production had the use of DDT increased. Tests on Ontario foods and human fat tissue showed pesticide residues to be low on a world scale and no danger to human life could be demonstrated.

Evidence from British Columbia, the Maritimes, the United States, and overseas, had, however, pointed to a toxicity of DDT for fish and predatory birds. In 1966, the OWRC stopped issuing permits for the use of DDT in treatment of water bodies. A potential threat in Ontario to fish life was demonstrated when in 1967 the OWRC detected the pesticide in fish from the Muskoka Lakes. Citizen groups and the media increased their pressure against its use.

There followed in 1969 two reports from government-sponsored bodies on the use of DDT in Ontario, the first published in March, coming from the Advisory Committee on Pollution Control made up of deputy ministers from resource departments. Their conclusion was that although the DDT residue in fish warranted concern, the effect upon the health of people eating fish was no cause for alarm. Likewise, there was no direct evidence that use of DDT in Ontario was interfering with the life cycle of fish and the continued limited use of DDT under adequate controls was recommended. The decision was an indication of strong agricultural interests on the committee.

In September another report was published, prepared by the Ontario Pesticides Advisory Board for the Ministry of Health. Again it was concluded that DDT posed no immediate threat to human health at that time. The evidence of adverse effects on fish-eating birds and predatory fish was accepted. In recognition

of the long persistence of DDT and its entry into and possible concentration in the food chain, the Board recommended a drastic reduction in the use of DDT.

Later in the month the Minister announced that the insecticide would be restricted under permit to use on tobacco and apple crops and for bat control, all in all, representing an 80 per cent reduction. Aldrin, dieldrin and heptachlor had also been restricted in use earlier in the year.

The Ontario government was one of the first in North America to prohibit general use of persistent chlorinated hydrocarbons, showing itself to be more responsive in this respect than most jurisdictions. Although the federal government had in 1968 prohibited DDT spraying in national parks, the Minister of National Health and Welfare did not support Ontario's action because a danger to human health was not in question; samplings showed that the average Canadian daily input of DDT was less than 5 per cent of the world health organization acceptable level and was no longer rising. Canada Department of Agriculture was strongly against the imposition of more severe federal restrictions. Early that November, however, in a sudden policy change, Ottawa followed the example of Queen's Park and a nation-wide restriction was enforced. Since 1972 DDT has been banned completely except for bat control, and other restrictions placed on the general use of chlorinated hydrocarbons as, for example, the PCB's used in the plastic industries.

By the 1970's concern with environmental deterioration and pollution had gone well past the earlier public health criterion. All living things of the ecological system were of concern in some degree. Environmental protection was claiming government attention and having an increasingly wide influence.

Municipal Water and Sewage

The extension of municipal water and sewage services across Ontario was a central policy goal of the 1950's. To further this goal the provincial administration gradually extended its operations and activities in the 1960's.

In its early years, the OWRC confined its financial involvement to the provision of what were in effect long term low interest loans. Although Metro Toronto could raise money on as favour-

able terms as the province, so that loans were no incentive, this was certainly not the case with most municipalities. In fact, badly needed construction was held up by decisions of the Ontario Municipal Board (OMB) because of the unsatisfactory financial status of many urban centres.

Frustrations of this kind were largely overcome after 1965 when the province, through the Commission, became involved in water and sewage works construction, supplying the services to designated areas at cost. Later, sewer trunks and water mains were likewise included in the services.

Provision had been made in the OWRC Act for this type of activity, but the actual decision of the province to move into the utility business resulted from the ten-year long deliberations of the City of London to solve its water shortage. Although the London Public Utilities Commission preferred to use ground waters and the Thames River, augmented by the new Fanshaw Lake, the OWRC favoured a more costly scheme of bringing water by pipeline from Lake Huron. The Commission argued that not only were regional underground supplies running short for local farmers, but taking water from the river would also dangerously reduce its capacity for carrying treated sewage. The controversy came to an abrupt end in May 1964, when Queen's Park issued a policy statement unilaterally setting in motion the construction of a provincially owned pipeline and the sale of water to London and localities en route.

One reason the negotiations were so prolonged was that they reflected divergent views on local and regional priorities, and on appropriate methods of financing. The initial 1954 decision of the London PUC to enlarge the ground water system and build a filtration plant at Fanshawe Lake was purely local, short term, and technical in scope, based on a consultant's report. During the subsequent delay, while the project was before the OMB, the establishment of the OWRC made a second review necessary, and created the added technical requirement (in view of the reduced river flow) to improve the effluent quality from the local sewage treatment plant.

Negotiations on the proposed pipeline were frustrated because it was obvious that many years would likely elapse before the scheme could be financed locally. Representations were made

to the province, where opinion was split between OWRC and OMB policy. The government, with the Premier playing a major role, took the matter out of local hands and decided to proceed with a provincially funded scheme, thus firmly establishing the regional approach to water supply problems under provincial planning concepts.

In its new role of a utility supplier, OWRC was now able to promote several large developments of considerable regional value. Through subsequent ambitious projects, water was carried by pipeline from Lake Erie to the St. Thomas district where a new Ford plant was projected. Later an integrated sewage and water works was constructed to supply the southern portion of Peel County. To facilitate the economic supply of services and ensure cooperation, an amendment to the Act authorized the Commission to impose terms and conditions on municipalities making up a defined service area. The Commission could and did issue orders to municipalities that did not cooperate to implement its recommendations in this and other respects.

Financing local water and sewage works continued to fall, in the long run, entirely on the shoulders of local taxpayers under the policy established in 1954. The tax base of small municipalities was obviously inadequate to carry the cost. In 1969, a break was made with the policy, and authorization was obtained for subsidies up to 50 per cent. This was increased to 75 per cent in 1973. To date a total of nearly \$126 million has been spent, or committed, by the provincial government in subsidies for more than 250 projects worth nearly \$400 million.

Alongside, but independent of OWRC, Metro Toronto was developing an integrated water and sewage system. A look at its program gives another dimension to the total picture. At the beginning of the century untreated sewage had been drained into Lake Ontario and typhoid was prevalent. The Ashbridges Bay Sewage Plant (dating from 1908) by 1950, in spite of expansion, was completely overloaded, as were eighteen smaller plants dotted around the area. Many of the suburban districts dependent on septic tanks were now suffering from seepage and overflow as the population grew. Streams and rivers were no better than sewers.

In 1954 the new Metro Government was assigned responsibility for all water works and sewage disposal plants, major sanitary

and storm trunk sewers, and drainage outlets, as well as for planning and financing construction operations and maintenance. From 1955, new septic tanks subdivisions were banned, and by 1966 the area was served by seven new or expanded secondary sewage treatment plants. At this time 40 per cent of all primary and secondary sewage treatment in Canada was located in Metro, which gives some idea of the magnitude of the program.

The Central Mortgage and Housing Corporation became a source of partly forgiveable loans from 1961. Over the decade to 1970 such loans to Metro Toronto and the rest of Ontario, amounted to \$196 million; in comparison, OWRC loans for both water and sewage works, came to less at \$157 million (Toronto made no use of them). Total approved expenditure on all municipal water and sewage works in Ontario over the period approached \$1.5 billion.

The CMHC's Seadon Report in 1972 dealt comprehensively with sewage disposal in Canada. It confirmed that OWRC loans represented no more than a small proportion of the total funds expended in Ontario. The loans were a helpful but not a dominating factor in promoting water and sewerage programs. The policy was implemented because of several factors, such as the standards set, the pressure applied, and a knowledgeable use of financial incentives by the Commission. The programs resulted in the coordinated growth of water and sewerage utilities across the province. Encouragement, even insistence on big regional schemes, moreover, in many instances provided for a level of efficiency otherwise possible only in a metropolis.

The Ontario Water Resources Commission became a leading force in urban development. The external effects generated by it assisted the development of planning. As an example, local authorities, having to meet standards set by the Commission, came to regulate the sequence of development through the timing of construction of public works, notably trunk sanitary sewers.

In the absence of an agency such as the Ontario Water Resources Commission, other provinces lagged behind Ontario as far as water and sewage works were concerned. Over the years 1960-1969, Ontario with only 35.6 per cent of the national population used 53.9 per cent of the Central Mortgage and Housing Corporation loans. But other provinces could not

complain that they were denied their share of federal money for it was only after 1969 that the demand for loans exceeded the supply.

The Canada-United States Agreement on Great Lakes Water Quality signed in April 1972 provided a strong stimulus to get water pollution in the Great Lakes watershed cleaned up in the foreseeable future. One of the most critical problems of the lower lakes is eutrophication. Lake Erie and, to a less extent Lake Ontario have been over-enriched by phosphorus and other nutrients mainly from municipal sewage. Excessive growth of vegetation and algae has been the result. Programs called for under the agreement include near completion by 1975 of all municipal waste treatment facilities, including phosphorus removal, to meet new quality objectives. Canada and Ontario's share of expenditures is estimated at \$500 million against a total of \$2 billion for the United States. Funds necessary for the accelerated programs on the Canadian side are being provided under a Federal-Provincial agreement signed in August 1971. Partly forgiveable loans totalling \$167 million will be furnished by Ottawa. The province is subsidizing joint studies with municipalities, on nutrient removal treatments.

Progress in the municipal sector has therefore, reached the point that all large urban centres remove suspended solids by primary treatment and most have secondary treatment facilities, to remove organic solubles, installed or under construction. Furthermore, by the end of the decade it is projected that all urban centres (population of 1,000 and over), as well as many smaller communities, will be serviced by adequate sewage treatment facilities. In addition, more than 200 municipal sewage plants will provide tertiary treatment for nutrient (phosphate) removal.

The growing popularity of lakes and rivers as sources of recreation is encouraging a more responsible public attitude towards water pollution. In spite of protests from boating organizations, controls on disposal of sewage from boats were enforced from 1969, but the problem of coordinating regulations with those of other Great Lakes States has still to be completely overcome. The seriousness of cottage pollution of lakes has led to expanded public health programs, controls on private sewage disposal, and subdivision and building controls in recreational areas.

Water Pollution and Industry

Though an Industrial Wastes Branch had been established by the Ontario Water Resources Commission, its attention was confined to investigating industrial problems, making surveys, and seeking as much voluntary cooperation in pollution control as it could. Court cases, to enforce the legislation, were held to a minimum.

In 1964 the Commission reported through the new Department of Energy and Resources Management. Greater priority was now accorded to industrial pollution control through a new Division of Industrial Waste, and from 1965 all new industrial establishments and major extensions were required to construct approved facilities for treatment before disposal of waste effluent to a natural water course or storm sewer. This was a big step forward. The new policy was administered strictly and stopped industrial pollution from getting progressively worse.

There remained the unfinished task of clearing up the backlog of pollution from existing plants. As in the past the Branch experienced difficulties in enforcing the legislation. Although municipalities and industry face the same penalties, and allowing for the fact that their technical problems are somewhat different, there remains a startling contrast between the levels of pollution caused.

Ontario policy has been not to set uniform provincial regulation for effluent waste disposal, but rather to take a more flexible approach. For example, comprehensive surveys carried out in past years have permitted water quality objectives to be drawn up for "reasonable use" of different river basins. Hence on the basis of best practical treatment, effluent waste control requirements are established for all users of the water of each basin. This is essentially a long term approach and leaves open the probability that requirements may alter with time as water use and technology change.

More recently, the Federal government has amended the Fisheries Act to bring in regulations setting national baseline standards for individual industries. Although simplistic and less flexible in character, the regulations will limit the likelihood of pollution havens in regions where economic growth might otherwise be put ahead of environmental protection. In Ontario the Ministry of the Environment will enforce the Fisheries Act

Regulations with little change anticipated in existing provincial practice. The federal standards will provide no more than a base level.

While the work of the Industrial Waste Division has led to a substantial reduction of pollution from existing establishments, plans laid in 1965 for a scheduled program of industrial water pollution abatement were not adhered to. A deadline of 1970 set for widespread installation of primary and secondary treatment works was by no means implemented, following which the business slowdown of the early Seventies provided an additional reason for delay. In 1971, estimates by the Ministry of the Environment showed industrial discharges to surface waters greatly exceeding municipal:

	Suspended Solids	Organic Solubles (BOD ₅) (lbs./day)
Industrial	1,374,000	2,362,000
Municipal	150,000	150,000

The necessary legal basis has been provided by legislation to prevent individuals, municipalities and corporations from polluting water resources and the atmosphere. As these powers began to be employed rather more firmly against industry from 1965 to 1971, 56 companies were prosecuted, (fines averaged \$375 per conviction) and 32 orders were issued to instruct industries to take specific action. But in the absence of very heavy fines or court injunctions the policy could hardly be described as one of strong enforcement.

In the municipal sector, legal enforcement powers were no more than a big stick for the province to shake. Incentives and favourable institutional arrangements were the preferred means to secure cooperation, and they worked. It is unfortunate that comparable circumstances could not be provided for industry.

Pollution treatment facilities in most instances require a heavy investment. Demand under law that they be installed to an early deadline without regard to economic or marketing conditions could result in business problems or even plant closure and the attendant consequences of unemployment. In communities which are entirely dependent on one major industry this represents a social and economic disaster.

As a further complication, Canadian resource and other industries facing international competition would be handicapped if other trading nations failed to impose comparable requirements for pollution control. This concern is of such international importance in the pulp and paper sector that the Organization for Economic Cooperation and Development (OECD) has a comprehensive study in hand.

Yet if legal enforcement practice is to work effectively, such economic factors must be ignored. In trying to enforce the law without economic disruption, the Ministry of the Environment, is in the unenviable position of having to vary its policy, industry by industry, community by community, and in relation to the business cycle and foreign competition. The progress made by the Ministry under these difficult circumstances is remarkable. However there is no question of matching development in the municipal sector.

Of the 10,000 industries in Ontario about 2,000 use water processes. Of these, about one-third discharge effluent directly into water courses. Sixty per cent of the latter generally meet current Ministry requirements, but those that do not are the ones that create the industrial waste problem. This group includes the most difficult cases in the province. They are least capable of being dealt with effectively by enforcement measures alone.

Current tax relief programs—the principal incentive for industry—are of little help. A particularly incongruous situation is developing in northern Ontario with communities receiving Provincial encouragement to install waste treatment facilities discharging into watersheds grossly polluted by mills or mines. The latter have no comparable incentive to improve effluent standards, and the Province is unable to enforce improvements for fear of closing the industry down.

The Industrial Wastes Branch in its Report on the Status of Industrial Water Pollution Control in Ontario, as of 1971, has identified particular areas of concern, and a number of technical and administrative problems have already been effectively handled by the Branch. For instance, accidents and spills now get a quick response; controls over phosphorous in industrial effluent have been largely resolved; central plants for disposal of concentrated and dangerous industrial wastes are now in operation. But in other areas like the pulp and paper industry, although the problems are defined and the technology largely

available, economic constraints hinder effective measures being taken. Enforcement alone does not seem adequate to provide effective answers.

Air Pollution and Industry

As the province steadily took over traditional municipal responsibilities for water supply and disposal, evidence continued to accumulate that controls over air pollution, a municipal duty up to the 1960's, were likely to follow a similar path. Problem areas were developing that demanded uniform provincial standards, sophisticated testing facilities, and strong enforcement ability. By 1965 however, no more than four municipalities had full time staff on the job and little enforcement activity went on outside Metro Toronto. The "Grey Cup" smog experienced there in 1962 was reminiscent of incidents in older cities, and a witness that serious pollution might become a reality.

The municipalities were at a serious disadvantage in dealing with the heavy industrial plants, chemical works and power stations, that represented the major sources of air pollution in the province. In the absence of provincial standards, enforcement of the by-laws was not to a municipality's economic advantage, for it tended to curtail development of the industrial tax base.

It was true that a reduction of air pollution in the United Kingdom had been achieved by local authorities operating the Clean Air Act (1956). This was, however, largely a matter of designating "smoke control areas" where the domestic user was barred from burning coal in the traditional open hearths, circumstances which municipalities could handle effectively. Emissions from industrial sources were, on the other hand, controlled under United Kingdom regulations imposed by the Alkali Inspectorate, a national agency.

The inability of a small municipality to cope with a pollution problem from local industry was well documented in the 1968 Report on Pollution of Air, Soil, and Water in the Townships of Dunn, Moulton and Sherbrooke in Haldimand County. From it can be obtained a good idea of the background to the problems faced at that time.

Two companies were involved, the Electric Reduction Company (ERCO), producing phosphate fertilizer, and the Sherbrooke

Metallurgical Company, manufacturing sulphuric acid and zinc oxide. The Ontario Water Resources Commission had studied industrial water pollution in the area since 1959, and in 1960, the Department of Health, as part of a new program to survey industrial air pollution across the province, began making tests around the industrial complex in Port Maitland. No crop or other damage was reported from the district, however, until plant changes and extensions had been completed in 1961. Complaints by local farmers to the Vineland Horticultural Station in 1962 set off the "fluoride problem" that involved investigation of possible damage to property, crops and both animal and human health.

ERCO cooperated with the Department of Health to limit emissions of fluoride and sulphur dioxide. The Ontario Federation of Agriculture, showing an active concern, made arrangements for compensation to be paid by the company to local farmers, which in 1966 exceeded \$120,000. Nevertheless, the measures taken were ineffective when put alongside the problem as a whole. A by-law, imposing controls over industrial pollution could in no way be enforced because, to have done so, would have jeopardized 75 per cent of local taxes and jobs for 350 people!

Publicity arising from these events coincided with the DDT scare to arouse an awareness of pollution. It was the unknown threat to health that worried people most. This was emphasized in a CBC television production *Air of Death* in October 1967, and in subsequent newspaper stories. Following these assertions, residents of the area and in fact from some distance outside, claimed difficulty in selling farm produce because it was supposedly polluted.

In the meantime, this chain of events and other incidents had brought a revision of the Air Pollution Control Act giving Queen's Park authority to enforce uniform standards across the province. Here was a good example of centralization to deal with an issue of growing importance. Also, the Commission of Inquiry was set up to study the Haldimand problems.

The Commission confirmed reports of damage to property and crops and some effects on animal but not on human health. Particular attention was drawn not only to industrial negligence but also to the lack of urgency on the part of the government in

developing anti-pollution policies and the inefficiency of the pollution control agencies of that time, to deal with the complex problems involved.

An expansion program was put underway immediately by the Department of Health to extend an Air Pollution Control Service province-wide, integrating the existing municipal agencies. As enforcement measures were strengthened prosecutions jumped.

The expansion was proceeding full swing when the service was transferred to the Department of Energy and Resources Management. The purpose of this move was towards the eventual establishment of an environment Ministry, but it had the drawback of down-grading public health considerations. The extent to which many air contaminants were potential health hazards could be seen in the fact that a medical adviser from the Ministry of Health was seconded to the new Air Management Branch.

In a relatively few years the province has succeeded in rolling back the threat of serious pollution that appeared imminent in the mid-Sixties. The air pollution index, an alert system maintained in Toronto, Hamilton, Windsor and Sudbury has led to a demonstrated improvement of urban air quality. High index readings, when major polluting industries can be called upon to shut down operations, are becoming less frequent year by year.

In enforcing controls over industry the air pollution inspector runs up against the economic-environmental trade-off problem. But because a public health factor is more often than not involved, he is in a stronger position than his water pollution colleague. According to the Ministry, every major source of air pollution in the province has been surveyed and placed on a control program either voluntarily or under orders. Nevertheless difficult problems remain of a financial and technical nature to one degree or another, particularly in respect to the metallurgical and pulp and paper industries, and thermal power stations.

Transportation accounts for over half the man-made pollutants emitted to the air in such urban districts as Metropolitan Toronto, with the automobile the largest contributor. Carbon monoxide, nitrogen oxides, hydrocarbons and lead are the most

significant components and tests have indicated a possible threat to health. High concentrations of automobiles in large urban areas have also led to development of massive expressways which, by creating land use problems, have generally lowered the quality of life in their immediate vicinity. Greater support than in the past therefore is now forthcoming for public transit development. In addition, restrictions on automobile use have been proposed for areas in the United States where automobile pollution is particularly intense.

Most types of emission controls on vehicles under development have a disadvantage in that they raise costs because of higher fuel consumption. For this reason there is controversy over the extent to which these options are necessary in Canada, and federal regulations are now calling for less stringent standards than are to apply in the United States.

Problems of Energy Production, Distribution and Use

Ontario is not well endowed with primary energy sources for there are no large and accessible coal deposits and only limited petroleum and natural gas production. The development of hydro generated electric power was, therefore, the significant factor in provincial industrial growth. Six million kilowatts capacity exist at present and a further 1.5 kilowatts may have potential for intermittent requirements at peak periods, depending on economic and environmental considerations.

Although in the past, hydro power generation has been claimed to have minimal environmental damage impact, this assertion is now being questioned particularly in relation to northern areas. As illustrated by the controversy over the James Bay project on the Quebec side of the border, conservationists can no longer ignore the potential adverse effects of dams and water diversions on human habitation, animal life and plants.

The uranium deposits of Elliot Lake are at present seen as the most promising source of future energy supplies, possibly to more than offset the declining role of water power in the total generating system. The serious environmental hazards of uranium mining were, however, drawn to provincial notice in 1964 when, because of a lack of proper attention to tailings disposal, radioactive contamination of public waters was detected in the mining areas. More efficient techniques were develop-

ed and present day control and monitoring practices are believed to be satisfactory but long term effects need further study.

Of Ontario's total energy requirement, 80 per cent is imported in the form of petroleum, natural gas, or coal. Their transportation and conversion in power stations along with indigenous fuels has had deleterious effects on the natural environment, accentuated because of accompanying rapid urban growth. The increasing amount of land required for rights-of-way affects sound land use planning, public amenities, and aesthetics. But it was only in 1973 that provincial restraint was put on power line development by Ontario Hydro.

Thermal power generation using coal or oil fuel gives rise to serious air pollution problems through emission of particulate matter and oxides of sulphur and nitrogen. Following the 1967 provincial take-over of responsibility for air pollution control, increased efforts were made by Hydro to effect a reduction in release of pollutants. To this end the coal burning R. L. Hearne station in Toronto was converted so that natural gas (a far cleaner fuel) could be utilized. Unfortunately the economics of natural gas supply makes its long term use for energy production a remote proposition, and while thermal production of electrical energy continues as a major power source, the traditional fuels can be expected to provide the primary source. The need, therefore, to reduce the pollutant effect of these "dirty" fuels becomes of vital concern. Technology to remove particulate matter from the stack gases is already employed but a satisfactory solution to remove other pollutants at reasonable cost is still under development. The best that can be done at present is to dilute their effect by the appropriate location of generating stations and construction of tall stacks. Of course, the pollution is spread over a wider area.

Another problem common to all forms of electrical power generation except hydro power is discharge of thermal wastes from cooling water. The low water temperatures and high flow rates of the Great Lakes have so far prevented anything more than local effects. Continued growth of electrical capacity, however, does cause concern for the future. Eventually means must be found to utilize or at least dissipate the waste heat of thermal power plants.

The generation of electricity by nuclear power brings the particular risk of radiation exposure. There is general agreement that the consequent local and global increase in background radiation should be held to a minimum and precautions against accident should receive the highest priority. Fortunately the Canadian CANDU system is one of the safest in the world but the need for close and continuous surveillance remains.

A federal body, the Atomic Energy Control Board sets standards and exercises formal control over the development and building of nuclear power plants in Canada. It is separate from the Crown corporation, Atomic Energy of Canada Limited, and there is thus no conflict of interest between regulation and promotion responsibilities. Several provincial agencies are concerned with ensuring safe conduct of operations. Attention has been drawn to a need for improved coordination of activities, particularly with respect to radiation hazards that might develop outside industrial plants.

External Relations

Remedial measures to curtail pollution of the Ottawa River which forms much of the eastern boundary of the province have been the subject of lengthy negotiations between Ontario, Quebec and the federal government. On the western boundary the English River system flows into Lake Winnipeg. For two years from April 1970 to March 1972 a ban on commercial fishing in the lake was necessitated because of mercury contamination, partly due, it was claimed, to mercury contamination from a chlor-alkali plant in Ontario. The Manitoba Court of Appeal reversed an earlier decision and ruled, in March 1973, that the Manitoba Fisherman's Assistance and Polluters Liability Act gave that province the right to sue companies outside Manitoba for damages.

To the north a future shock to the environment is implicit in the James Bay project on the Quebec side. In spite of the high degree of development in southern Ontario, heavy concentrations of population and industry in the United States provide the major polluting effect in the Great Lakes Basin. For the Lower Lakes this is detailed in the 1970 Report to the International Joint Commission.

In Lake Erie, discharges from the Canadian side were found to be relatively small. Most of the wastes entering the Niagara River originated in the United States where, in many communities as of 1970, treatment of municipal waste was confined to sedimentation and chlorination. Mercury contamination of Lake St. Clair by industry has put an end to commercial fishing.

Half the contaminants discharged into Lake Ontario were contributed by the Niagara River. However, in the lake itself and along the international stretch of the St. Lawrence River, Canadian communities and industries were also heavy sources of pollution.

The Canada-United States Agreement on Water Quality provided for the completion of basic sewage works programs in eight Great Lakes States and Ontario by 1975. Lake Michigan, wholly in the United States, is excluded from the pact. While plans in Ontario have been going ahead, fears have been expressed and appear justified that, because of complicated procedural measures, the United States cleanup will be protracted over a longer period than originally anticipated.

The Costs of Environment Protection

In our new eagerness to look after resources with greater care, much is being said on the subject of the costs that are being or will be imposed on our economy. Money spent on all the aspects of natural resource management and environmental protection, however, has never been a relatively large item in the Ontario provincial budget. Furthermore, resources bring in an income which, although no longer considerable, was an important source of provincial revenue until the early years of the century.

Expenditures in Millions of Dollars

	1950	1955	1960	1965	1970	1971
Natural Resources	17.8	18.9	44.7	55.4	129.3	159.5
% of Total Provincial Budget	4.9%	2.8%	3.5%	2.3%	4.0%	4.1%

Revenue in Millions of Dollars

	1950	1971
Forests	\$6.3	\$21.3
Mines	3.3	27.6
Fish and Game	2.8	10.8
Water*	.5 (Est.)	11.2
Land	1.5	7.6
Air	—	—
TOTAL	\$14.4	\$78.5

* Excluding water power rentals (e.g. Niagara Parks Commission), and service charges for water distributed to municipalities.

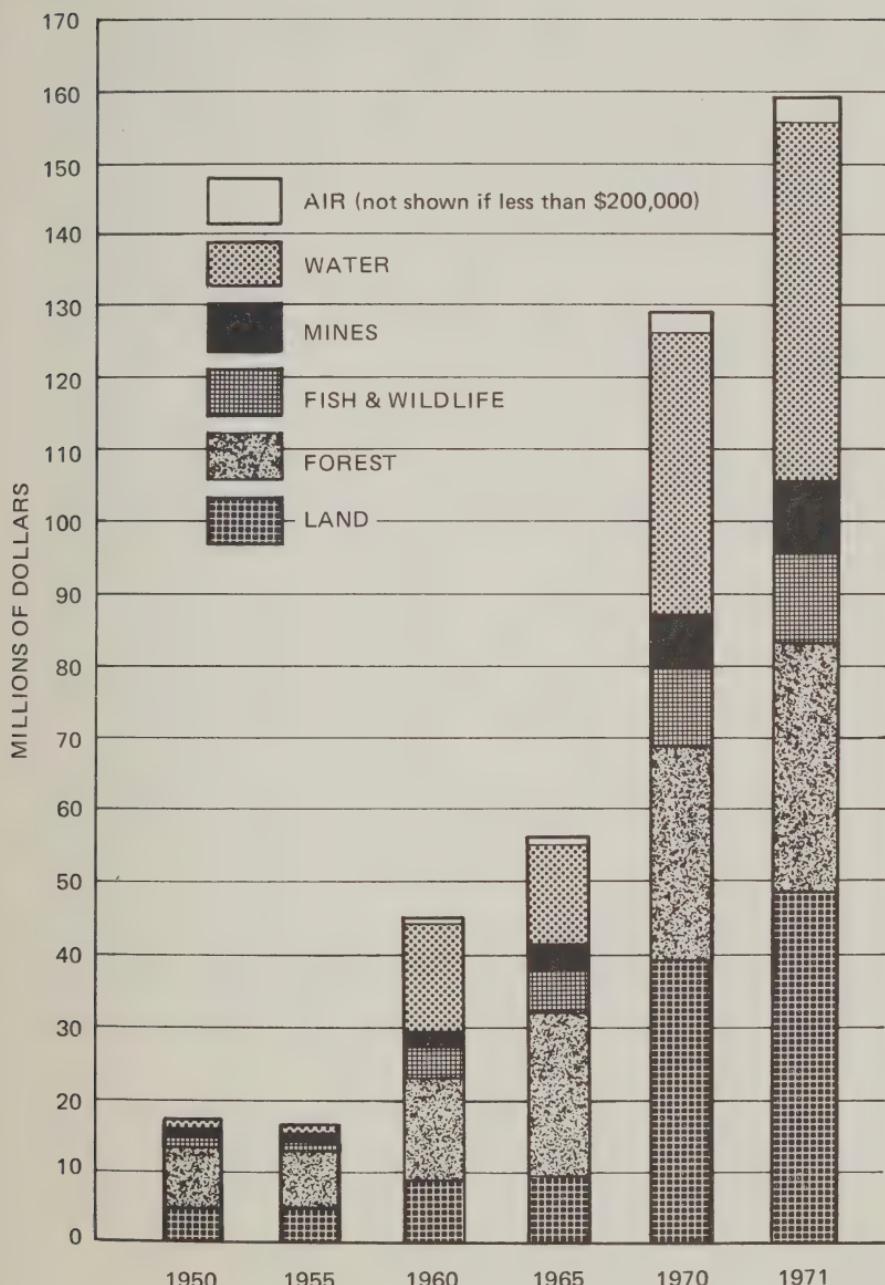
The breakdown of individual resource expenditures varies in degree of complexity among the resource areas, and some margin of error due to interpretation must be included. The province, it should be noted, has changed its accounting system several times during the twenty-two year period, and the 1950-55 Public Accounts are especially difficult to examine for the purpose. As well, the functions have shifted among departments and some items may have been buried and thus omitted from our benchmark year tabulations.

Expenditures Rise (see Chart)

In absolute terms expenditures began to increase in volume following 1955, although, due to heavy government investment in other sectors such as the highway program, the natural resource share of the budget declined. The low percentage level in 1965 can in turn be ascribed to a budget expansion to meet spending on health and education. Now that these have steadied, continually increasing provincial involvement in water pollution abatement is tending to bring natural resource expenditures up again in proportion.

The importance of forest products to the provincial economy is such that, as recently as 1955, half of government expenditures in the resource field were devoted to forest management, and the other major proportion to land management acquisition. After this time, the picture changed as water management

NATURAL RESOURCES EXPENDITURES BY ONTARIO GOVERNMENT



Source: Public Accounts of Ontario.

expenditures mushroomed to cover provincial loans (included here as expenditures) and, in recent years, grants to municipalities and investment in the province's own service facilities.

In contrast, direct subsidies other than for research and development have not been applied to promote air pollution control, and as a result costs, covering more or less administration of the program alone, have stayed on the low side. Following the 1960 increase in park development, coupled with acquisition of marginal farm land, expenditures are now concentrated in water, land and to a lesser extent forest sectors. The traditional services offered to mining companies, and conservation activities with respect to fish and wildlife have continued to grow and improve in sophistication but remain as a modest share of the budget.

The main items contributing to revenue include dues and stumpage charges for forest protection and management, interest on loans for water and sewerage works, fish and wildlife licenses and royalties, park fees, and land rentals, licenses and taxes.

Looking at total public and private expenditures, concern has been expressed as to the effect of pollution control costs on economic growth and living standards. According to studies by Environment Canada, by 1980 the cost of environmental protection in Canada can be expected to take up from 1 to 2 per cent of GNP. In other countries levels up to 3 per cent have been predicted. Future costs of automobile emission abatement and solid waste disposal are particularly difficult to estimate.

Relatively heavy expenditures on protection of the environment may be found disturbing for some regions. Ontario is already familiar with the need. Public and private expenditures in 1972 exceeded the \$400 million mark, that is to say, already over 1 per cent of gross provincial product.

In the public sector direct charges fall principally on municipalities, although federal and provincial governments contribute. In 1972, total expenditures in the province on sanitation and waterworks was estimated to amount to about \$350 million. Of this total, solid waste collection and disposal approached \$100 million; gross general expenditure of Environment Ontario, covering the administration of water management, and air and land pollution control, amounted to \$27 million.

Industry invested about \$50 million, including facilities for both old and new plants and to this figure must be added operating and maintenance costs. Not included are private costs of automobile pollution control.

A large proportion of pollution curb expenditures are "catch-up" costs due to lack of managed resource use in the past. As of the end of 1971, an investment of over \$300 million was estimated as necessary to clean up industrial pollution of waterways. Sooner or later pollution from agriculture must receive attention. Even when problems originally in the past have been accounted for no decline in expenditures seems likely, given continued pressure on the environment from economic growth.

But these and similar problems are expected to be a common feature of industrial economies in the years to come, and should not bear disproportionately on the province.

Should Ontario, however, choose to impose more strict conditions than are the rule in other provinces or countries, then economic development and growth could hardly fail to be influenced. The time has come to seek improved understanding of the benefits and costs of environmental protection.

The Economic-Environment Trade-off

The upsurge of interest in the natural environment is no more than a few years old. Can it be expected to sustain itself in the future, or will it subside and die away like the conservation movement earlier in the century?

History is not likely to be repeated, for economic development and population growth have brought problems of natural resource use to the forefront and difficulties materializing are unlikely to disappear overnight. We face a painful dilemma. The traditional economic and social benefits to which we aspire are obtained at the growing risk of environmental damage or destruction, resource depletion, and potential national and international discord. All of these—should they come about—carry us away from the desirable quality of life we are seeking. Increasingly well educated and affluent societies in countries world wide are becoming knowledgeable and concerned about the basic issue, and mankind is facing, locally and globally, some fundamental decision making.

This issue cannot fail to keep public opinion aroused, and command attention among policy makers in Ontario and Canada in the years ahead. Certain aspects are of particular relevance for the province.

Progress Towards Coordinated Resource Management and Planning

The history of resource management in Ontario shows that, as complex problems arose, as provincial goals and policies and programs have undergone shifts and changes, resource planning has often been carried out on an ad hoc basis.

As far back as 1950, the farsighted Select Committee on Conservation had recommended the establishment of a "Chief of Conservation" with the status of Deputy Minister. The government response at that time had been no more than to set up a Pollution Control Board to coordinate the activities of the Department of Health, and of Lands and Forests, the agencies most directly concerned. But the control and management functions that developed through the 1960's, although together they formed an impressive effort, were built up in various departments and agencies in an untidy structure. In illustration, a paper on the *Administrative Framework for Water Management* at the Resources for Tomorrow Conference in 1961 criticized the state of water management in the province as typical of ad hoc development, where various agencies administered a variety of acts and performed many and sometimes duplicating functions. Improved coordination was imperative.

In 1965, the uranium contamination problem at Elliot Lake was studied by a committee of deputy ministers, which in 1966 became officially known as the Advisory Committee on Pollution Control, charged with responsibility for coordinating activities in the field. Subcommittees on air pollution, industrial waste, pesticides, herbicides and fertilizers, and radioactivity were active during the period. The Advisory Committee instituted studies on DDT and on cottage pollution in vacation areas. The later problem had been brought to the fore by the Ontario Economic Council.

The special committee appointed to inquire into pollution of air, soil, and water in Haldimand County in its 1968 report was, however, particularly critical about a lack of coordination and the splitting of responsibility between government agencies involved. It suggested the creation of a Department of Environment, Health, and Pollution Control. Lack of centralization provided ammunition for the argument that environmental management was not a major concern of Queen's Park.

Initial steps in the reorganization came about in 1969, when responsibility for air pollution and waste disposal control was transferred from the Department of Health to the Department of Energy and Resources Management (through which the Ontario Water Resources Commission was already reporting), subsequently, to be reorganized as the Department (now Ministry) of the Environment in 1971. In that year responsibility for administering the Pesticides Act was likewise transferred.

Finally, the Health Ministry personnel still assigned to water and sewage projects became the Private Waste and Water Management Branch of the new Ministry. The duties of the local health units related to septic tank inspections and site evaluations were to be looked after by local environmental offices set up in the cottage country.

The Environmental Protection Act, 1971, laid down the powers and duties of the Minister and incorporated the provisions of the Air Pollution Control Act and the Waste Management Act, 1970. The latter was concerned with the growing problem of soil pollution and control of the disposition of industrial and domestic solid waste material.

The responsibility area of Ontario's Environmental Ministry is clearly seen to be the specific one of pollution control, approached from the angle of management of air and water use, and disposal of waste products on land. Coordination under the broader concept of natural resource management—of land in general, forests, mineral reserves—has been provided by grouping associated ministries under the Secretariat for Resources Development; these include the Departments of Agriculture and Food, Environment, Natural Resources (derived from the Department of Mines, Lands and Forests, and the Conservation Authorities Branch) and from June 1973 the new Energy Ministry, together with the Niagara and St. Lawrence Parks Commissions.

Although it is too early to judge, no doubt the current reorganization of resource and environmental protection agencies will serve to improve resource management. This is by no means the end of the trail. Major future developments are expected to result from techniques of coordinated management applied in the service of comprehensive resource planning.

Planning is needed in the sector of water management because of its demonstrated influence on regional development. Earlier studies and programs (of which there has been a multitude for water bodies across the province), are criticized for their fragmented viewpoint in the Treasury Board study *Review of Planning for the Grand River Watershed* (1971).

Nevertheless, the Ontario Water Resources Commission must be granted credit for having introduced effective coordinating elements at an early stage. This can be better appreciated by reference to contemporary federal programs in the United States where the type of subsidy employed led to a concentration on building individual municipal treatment plants. Follow through was needed to ensure efficient operation but this was not given enough attention. Encouragement of institution building to promote water management practice—a feature of Ontario development—was absent also.

A comprehensive study for the Thames River Basin to formulate water resource management guidelines has been put in hand jointly by the Ministries of the Environment and Natural Resources. Increased public interest in the environment is demonstrated by the inclusion of a “public consultation program” as a prominent feature.

Sophisticated techniques for the measurement of air quality and its assessment under different metrological conditions have been made available, to provide input for planning this aspect of urban and industrial development. Long term intentions for solid waste disposal programs will be expected to result from the Solid Waste Task Force set up by the Ministry. Waste disposal sites are becoming hard to find and a policy is required to encourage the evolution of new processes to handle waste, including recycling. Unexpected and sudden decisions in the past, for instance over disposable milk jug use, have proved expensive matters for industry.

But where most of the present emphasis arises, which is understandable because the potential influence is so wide, is in planning for land use. The 1973 Throne Speech at Queen's Park announced “major new programs designed to ensure sound planning and preserve this resource (land) for the use and advantage of future generations”.

Although Canada as a country may be engrossed in the technical difficulties of development in its Arctic north, Ontario's pre-occupations are quite apart. The province's concern lies with land use in a rural-urban setting where technical, legal and professional means of planning are at hand, but are onerous to put into effect. Political issues make them so and moves are necessarily made with caution.

The land freeze ordered in the Nanticoke area in the spring of 1973 was a surprising indication of the province's ability to control land use should the need arise. This power had been acquired without controversy, but the same was not true when, in June of that year bills were passed to introduce government controlled land-use planning across the province with special reference to the densely populated area around Toronto.

The new Ontario Planning and Development Act embodied long-term objectives for the province. Legislative power became available to designate any part of Ontario as a development area and to order that social, economic and land-use plans be drawn up. Leverage was provided to deal with municipalities slow to act. These strong provisions were counterbalanced by the requirements that the planning process be acted out in consultation with municipalities and other affected individuals, organizations and special interest groups.

The hazards of enlarging the scope of centralized planning were mirrored in reactions to the bill. Farmers asked for compensation for economic loss resulting from restrictions on the use and disposal of agricultural land. Their disapprobation was similar to that incurred by the recent British Columbia Land Commission Act, controlling sale of farm land for non-agricultural purposes. The development industry deplored the imposition of a further layer of bureaucracy. This, plus the requirement for citizen participation would certainly, it was said, accentuate the rapidly growing housing shortage and the rise in building costs typical of Toronto and other urban districts. A full evaluation of the new legislation will not, however, be possible until it has been put into use for some time. The utility of the new approach towards more formal provisions for public involvement will be watched with interest.

Critique of Current Environmental Protection Legislation in Ontario

While the provincial government has good reason to lay claim to forward-thinking environmental protection policies, the province is the home of strong environmental organizations which are not sparing in their criticism. Basically this revolves around:

1. The trade-off between economic development and environmental protection;
2. Enforcement of legislation;
3. Involvement of the public in decision making.

“Conservationist” and “environmentalist” are terms generally applied to those concerned with the careful use of resources. Broadly speaking the former implies one who seeks to prevent or minimize misuse, degradation, and destruction of resources in the course of economic activities. It is somewhat more difficult to define the viewpoint of the latter. For one thing it is more comprehensive and deals with quality of life as a whole—environmental protection being one important sector of concern. The more extreme environmentalists see a risk of destroying the earth as a suitable place for human habitation within a century, unless man's activities are restrained and maintenance of environmental equilibrium among living things in the biosphere given precedence. Even moderate proponents would generally put protection of resources before their use for economic purposes.

We have seen that the new emphasis on environmental protection has influenced government thinking in the recent past and will undoubtedly do so in future. Nevertheless, environmentalists see unwise in leaving trade-off decisions to government alone, for they warn that tradition will favour commitment to economic progress and industrial advantage. To their mind, direct intervention by the environmentalist is essential for equitable weighing of one factor against another. For the purpose, as outlined in this section, confrontation and adversary proceedings are regarded as most appropriate to bring the relevant facts to light.

Legislation to protect the environment has had limited impact, it is claimed, because of a reluctance to enforce it when economic development seemed likely to be hindered. Resource

departments such as Mines, and Lands and Forests, by tradition saw their prime function to be of service to industry and inevitably tended to adopt the values and biases of those they were supposedly regulating. The main concern of Ontario Hydro was to supply cheap and plentiful electric power. Raising the material standard of living of Ontario citizens was of first importance to these agencies; but inasmuch as land was expropriated, scenery defaced, and air and water polluted, the environment was spoiled and amenities lost to the public.

The establishment in recent years of strong government bodies saddled with specific responsibility for environmental protection—culminating in the Environment Ministry in 1972—gave credence to the claim that proper environmental management was a major consideration of Queen's Park. Nevertheless, the organizational changes were insufficient in the minds of the environmentalists to eradicate the impression that economic development came first and the word on environment protection was still—go slow.

The Environmental Law Association, an independent group representing the standpoint of a number of environmentalists and lawyers, argues that present day legislation is not necessarily the root of the problem. The statutes now are quite adequate to “provide for the protection and conservation of the natural environment” . . . as the Environmental Protection Act says. The need is for strong and consistent enforcement procedures.

Authority to operate the legislation rests with the civil servants of the Ministry. Enforcement cannot, however, be taken for granted because the power conferred on the Minister is largely discretionary—as the following indicates.

Under Section 14 of the Environmental Protection Act, . . . no person shall deposit, add, emit or discharge a contaminant . . . into the natural environment . . . Should this or comparable regulation be contravened the Director of a Branch *may* issue an order that the contaminant be controlled. In the event of “ . . . an immediate danger to human life, the health of persons, or to property . . . ” then the director *may* issue a stop order. An Environmental Council of “competent and knowledgeable persons in matters relating to the natural environment” *may* be established under the Act to advise the Minister. Such indepen-

dent advice could be invaluable, but no Council has been set up to date.

In the light of the above, rightly or wrongly, the Ministry is criticized for not functioning as its name implies. There follows the question whether the administrative agencies should continue to be essentially the sole institutions for environmental decision making. The Environmental Law Association would like to see enforcement strengthened through the facilitation of private court actions. It makes the point that, at the present day in Ontario, the individual's right to private action is unnecessarily fettered.

When reasonable grounds are present that a statute has been breached then a private individual can prosecute in the criminal courts seeking the imposition of a fine or jail term. The Ministry itself undertakes prosecution as an ultimate threat for industries unwilling to cooperate in proposed pollution abatement measures. However, fines of the level usually imposed are said to offer little deterrent effect.

Civil court processes present certain difficulties. A party suffering individual harm, perhaps from polluting activities, can sue for damages and an injunction to stop the pollution. The main handicap to recourse to the law is that procedures are long-winded, and, should the action be unsuccessful, expenses may be heavy.

The principal restriction comes when civil action is sought against a public nuisance, suffered not by one individual in particular, but the community at large. In such an instance in Ontario, the intervention of the Attorney General is required, who it might be supposed is almost always subject to whatever pressures prevent the Environment Ministry itself from acting forcefully.

Granting of the right for all citizens to sue polluters (including government agencies) has the support of the Ontario Branch of the Canadian Bar Association, as it set out in a brief to the Environmental Ministry in June, 1973.

Environmentalists show even greater insistence that they and the public in general be entitled to play a part in the approval process, for any new undertaking with a potential effect on the environment.

In the United States since 1970, the National Environmental Policy Act (NEPA) has provided the public with the means to challenge in court an increasing number of decisions pertaining to environmental matters. Section 102 of the Act requires that every proposal for "legislation and other major federal actions significantly affecting the quality of the human environment" shall include a prepared statement on its impact on the environment, assessing possible effects and alternatives. Preparation of such statements does not involve public hearings, but both draft and final statements must be made available to the public for up to 90 days before the project goes into operation. Citizens, through the courts, have been able to enforce the compliance of government agencies with the necessary analytical procedures called for. In this way federal actions may be challenged. The decision-making process is thus open to public scrutiny, and measures are permitted to be taken where it is felt that environmental goals are not being met.

In Ontario, citizens have no right (except in connection with the development of certain waste disposal sites) to participate directly in Ministry decisions. The latter cannot be contested. The public has no right to appear before appeal or hearing boards.

Environmentalists in Ontario have for some time pushed for legislation comparable to NEPA to be passed in the province. Their interest in the recent Green Paper on Environmental Assessment proposing new provincial regulations in this area is very keen. The more moderate among them, at least, agree that the ultimate control of decision rests with the elected government and they do not wish to usurp that role. On the other hand they insist that public involvement will promote healthy functioning of the political process in the interest of the community. In this regard American citizens, and for that matter (under their provincial legislation) citizens of Manitoba and British Columbia, have, it is said, more in the way of environmental rights than have the citizens of Ontario.

Government-Industry Relations

To the extent that government acts to enforce controls and the regulation of industry, environmental concern brings a potentially disturbing factor into the relationship between the sectors.

Many Canadian environmentalists, seeing industry as representing the "bad guys", have likewise sought to bring the trade-off issue into the open through actions in provincial courts. In Ontario, however, the authority vested in the Ministry to issue control or stop orders to deal with instances of pollution has, certainly in the past, served to play down publicity. Confrontation between parties, when it has taken place, has occurred mostly behind closed doors. Ministry advertisements for pollution inspectors have asked for "the ability to deal tactfully with a wide variety of people". The identity of the first recipient of a stop order was never even divulged. Nevertheless times are changing. Wider dissemination of information and the development of a broader decision base is assuming an importance in policy formulation. The economic-environment issue, as it applies to industry, can no longer be evaded and obscured.

In Chapter IV the problem of enforcing pollution abatement upon industry was discussed and contrasted with the relatively successful programs to foster cooperation from municipalities to the same end. It is incorrect, however to leave the impression that government has been completely in default of providing incentives to encourage the industrial sector. In common with most jurisdictions Ontario has done so; therefore the question to be asked is why results have proved disappointing.

The various Ontario schemes take the following shape:

- A. Federal Research Grants have amounted to \$20 million in 1971-72.
- B. The 12 per cent Federal Sales Tax has been remitted on pollution control works constructed by manufacturing industry. This merely puts pollution control equipment purchases on a par with those for regular production processes.
- C. Accelerated capital allowances have been granted under the Income Tax Act. Property acquired since April 1965 for the purpose of pollution control can be written off over two years. This is, unfortunately, a particularly perverse form of subsidy for it benefits only companies in a strong profit

position, whereas the need for assistance is at its greatest for those that are not profitable. Such tax relief is available for all capital investment made by manufacturing companies.

- D. Rebate is given on Provincial Sales Tax, valued for industrial and municipal sectors together at \$2 million in 1971-72.
- E. The Ontario Development Corporation Capital Loan Program at current interest rates has operated up to a maximum of \$250,000. This has not proved of value and in any event is inadequate to provide assistance for major treatment works.

Various alternative types of financial stimulus have been suggested or are employed in other countries and provinces, as follows:

- A. In a brief to the Federal Government, the Canadian Pulp and Paper Institute suggested an augmented capital cost allowance be made available for capital expenditures on pollution abatement by this industry.
- B. Anti-pollution industrial revenue bonds can be issued and are said to be popular in most of the United States. Tax free, they provide a current interest savings of 1.5 to 2.0 per cent over conventional corporation bonds. Other incentives available vary from one state to another. They encompass real estate and property tax exemptions, sales tax exemptions, accelerated depreciation and relaxation of various corporate taxes. The range is widest in New York and northeastern states.
- C. The Swedish government has provided grants up to 50 per cent of pollution abatement expenditures by that nation's pulp and paper industries to a maximum for each establishment of about \$500,000. The Finnish government has supported research and development and plans to provide similar grants and loans.
- D. The New Brunswick government has furnished financial assistance to industry for pollution control capital expenditures in the form of loan guarantees.
- E. The Province of Quebec has provided two assistance programs to encourage pollution control measures by the pulp and paper industry. An interest free loan was, in effect, provided for projects prior to November 1971 by deferral of

certain stumpage charges. In addition a degree of tax reduction was granted in 1972 in relation to pollution control expenditures.

F. In at least one instance, the new Kraft mill at Grande Prairie, the Alberta Government has agreed to share the cost of environmental control equipment with the United States company involved.

The extent to which the schemes outlined have proved helpful in other provinces and countries is not yet clear. In Ontario, where programs are confined to providing no more than a modest level of financial assistance through some indirect arrangement, it is hardly surprising that their effectiveness has not been great; the vital problem-solving attributes characteristic of the various ways, financial and otherwise, by which municipal cooperation has been secured are quite lacking.

There are other incongruities to be noted under present circumstances. As observed in Chapter IV, much of the social benefit arising from over 15 years' steady development of municipal sewage works could be said to be lost to Ontario, inasmuch as industrial pollution remains unabated. Treated municipal sewage discharges into the same water bodies as industrial waste.

Municipal-industrial relations have also been subject to criticism. Over 700 industries discharge to municipal sewage systems and thereby benefit, it could be said unfairly, from the various forms of assistance benefitting municipalities. This is a significant point for over 60 per cent of municipal flows are characterised as industrial in origin. In addition, according to the Ministry of the Environment, sewer-use by-laws applied to industrial effluents lack uniformity, for adequate charges are not always applied and administration is often lax. Worse still, there are municipalities said to be playing the part of "pollution havens" in order to attract industry at the risk of impairing their own treatment processes.

Resource industry world wide faces serious difficulties to cope with pollution abatement, the forest segment especially. Recent months have seen the latter singled out as the subject of attention of proliferation of studies and briefs emanating from government, trade and international organizations. Canada and

Ontario have contributed with reports that emphasize the long-term weak financial status of the eastern pulp and paper mills, subject as they are to cyclical instability and strong international competition. Demands for heavy investment in effluent treatment works provide additional reason for management to restrain plans for modernization and expansion, increasing the likelihood of plant closures when the present economic boom subsides.

A major problem of the eastern pulp and paper industry is the incapacity of small sulphite pulp producers (notoriously bad polluters), to make the extensive production changes necessary for abatement. In Ontario, recent months have seen two such plants, each part of a newsprint mill complex, close down, part of the reason being an inability to comply with a ministerial order to reduce effluent waste. Rationalization of sulphite production is a vital necessity, but that surely calls for a more thoughtful approach than is possible by order alone. Imposition of regulations may, on the other hand have led to the construction of heavily capitalized pollution control works in mills that were obsolete and better shut down, with alternative arrangements made for local employment.

Government measures to support and expand the pulp and paper industry are more obvious in provinces other than Ontario and have been a subject of criticism. For instance, foreign owners have been subsidized to locate in underdeveloped regions on sites that would not otherwise have been selected. Consequently inefficiencies have been introduced, and at the same time, the additional mill capacity has unbalanced the market, to the disadvantage of existing Ontario plants. Bankrupt and marginal mills closed by industry have been reactivated through provincial government support and investment. Fears have been expressed that the Canadian industry may divide into two groups, one of inefficient government supported mills, and the other largely foreign owned and profitable. Ontario's policy is so far unclear. Concern for the forest industry, was expressed in the 1973 Budget Statement as follows: "—we intend to assess our tax impact on this industry as well as other considerations in determining what provincial assistance might be required and practical". No very profound reorganization seems to be implied by this comment.

Historically the province has worked closely with the forest industries, on a financial, technical and legislative basis. The province takes a major share of responsibility for the protection and managed development of forest resources. In April 1973 long-term plans were unveiled to increase forest production. Another significant event a few months later was the decision to take over control of logging in Algonquin Park.

The latter may be seen as a reflection of proposals made by the Kennedy Royal Commission on Timber (1947), which recommended cropping on a watershed basis by forest operating companies acting as the source of supply to wood-using industries. The possibility remains for further developments to rationalize cutting operations across the province along these lines, to reduce the amount of cross-hauling of round wood taking place at present and help product integration.

The mineral and metallurgical industries face, not only heavy expenditures, but complex technical problems also in addressing themselves to provide acceptable procedures for disposal of solid waste and liquid and gaseous effluent. Mining is not able to plead financial disability to the same extent as the forest industry. Sudbury stands out as a problem area, and newspapers reports have implied certain deficiencies in industrial effort due to lack of pressure by the Ministry.

The fact that government has an increasing role to play in the development of Canada's and Ontario's resources is hardly to be questioned. Where reorganization and rationalization is called for, factors relating to pollution control must play an important role in the plans. Until such coordinated programs come into being, abatement of industrial pollution from existing establishments is likely to proceed no more quickly than the present modest rate.

Future Trends

The Ontario Ministry of the Environment has defined its aim to protect the national environment from degradation by man's activities in the form of the following goals:

To ensure proper control over the emission of contaminants into the natural environment for the purpose of achieving and/or maintaining predetermined standards of environmental quality.

To ensure that proposed programs, projects, policies and legislation in Ontario or affecting this province incorporate the necessary environmental safeguards through involvement of this Ministry in all aspects of provincial land use planning.

To foster the improved management of waste and water to achieve a more efficient use of natural and material resources.

Where the above measures are not sufficient, to develop specialized techniques for the restoration and enhancement of environmental quality.

A reorganization of the Ministry will take place early in 1974. A stronger field structure will be established by decentralization, and policies and procedures of the various disciplines integrated into a more cohesive whole. The traditional distinction between air, water, etc. pollution is clearly losing significance, for administration is becoming centred around operational activities.

These can meaningfully be looked at in three categories: planning, regulatory activities, and environmental impact assessment.

Strategic resource management and planning has ramifications among various government agencies, federal, provincial and municipal, both in and out of the resource field, as traditionally defined. As already outlined, Ontario policy making has of late been particularly taken up with land planning, both rural and urban. In the coming decade energy policies may well come to be of major significance; minerals and recycling processes may also enter the limelight of policy making.

A second area of importance covers regulatory functions, where the Environment Ministry administers the controls that maintain environmental quality standards in general; the Ministry of Natural Resources regulates the use and development of mineral deposits and forest land; and Agriculture and Food has the responsibility for farming land.

Equitable allocation of economic and environmental costs and benefits depends to a large extent on cooperation between these, and other Ministries in the National Resources Policy field. The problem of regulating industrial effluents has been detailed at some length. Another source of concern, so far less amenable to effective control, derives from pollution caused

through agricultural and related activities. This arises mostly from:

- 1) Run-off and release of nutrients;
- 2) Run-off of materials from animal and poultry feedlot waste;
- 3) Sediment from land erosion.

So long as farming continues to be a growing source of contaminants, particularly in the basin of the lower Great Lakes, then the benefit of measures to reduce municipal and industrial pollution will be diminished.

The third operational area focuses on assessment of the impact a resource related program or project may have on the environment, with particular concern about major industrial enterprises, dam construction, energy transmission lines, etc. Traditionally, benefit-cost analysis of new projects has emphasized quantifiable economic factors. The new purpose is to seek an equivalent weighting for the increasingly important, although less tangible environmental concerns.

The need for environmental impact studies and statements has become popular since the enactment of the United States National Environmental Policy Act 1971. The name was new, but the idea not necessarily foreign to Ontario experience.

The provincial requirement, from 1965, for new industry to construct approved facilities for waste treatment was a start in the direction of such assessments. Departments came together to coordinate environmental studies. The restructuring of ministries later contributed to this end. Liaison between Environment and Industry and Tourism Departments helped plan new industry location. Ontario Hydro became committed to the analysis of proposed sites for thermal generating stations. In 1968, the year after plans for the Nanticoke Generating Station were announced, an Environmental Committee was set up. Government agencies and industries locating at the site, cooperated in a study program. In 1969 a pulp and paper development in the Haliburton region was not pursued as a result of investigations indicating conflict with existing recreational uses.

Within the approval and assessment mechanism, however, there was limited provision for input from the public and to that

extent it was deficient. Under the Environmental Protection Act public hearings have been mandatory only in the development of certain waste disposal sites. Reported studies on proposed industrial and highway locations have been generally restricted to circulation within the Ministry. It is a complaint of the Environmental Law Association that, as matters now stand, commercial operations with considerable environmental impact may be established on land where zoning regulations do not apply with Ministerial approval, but without prior warning to the neighbours. The latter are then more or less powerless to affect the issues. A recent court case to do with a new charcoal plant involved trouble of this kind.

It is true that under the Environmental Protection Act and the Ontario Water Resources Act, public hearings—mandatory or not—have been of frequent occurrence before new government sponsored projects, such as sewage works, were undertaken. The 1970's have brought this concern into more prominence, and seen the establishment of task forces and commissions responsible for holding public hearings. These have taken place, for example, with respect to proposed lignite mining in northern Ontario and the Nanticoke-Pickering transmission line. Nevertheless, in the knowledge that the future holds a continual series of public and private enterprises requiring investigation of their environmental effect, the times call for the development of more general and formalized procedures. The government is proposing legislation to establish a permanent agency for environmental protection, having a responsibility for a comprehensive system of assessment and evaluation of the environmental significance of activities of government ministries, utilities and related activities in the private sector. The Green Paper published in September 1973 puts forth several possible approaches. Alternative options are related to the nature and degree of public participation, responsibility for preparation of the assessment document, responsibility for review of the assessment, and for the final decision.

Environmentalists, in reviewing the Green Paper, lay emphasis on the need for an independent and powerful environmental review board with judicial or quasijudicial powers for decision making. They also call for the public to be provided with access to the review process including all available information and funds to assist objection activity, in the public interest. It is

likely, on the other hand, that the government will not seek to facilitate protracted confrontations with interest groups of the style that have led to indecisions over many current developments in the United States.

Whatever the quandries in store in establishing a decision base, it cannot be disputed that judgment made in the past, on narrow grounds by special purpose bodies, have led to long-term environmental problems. Although it seems likely to put a challenge to the workings of the democratic process, a broader consideration of intent and potential effects will go to help shape the Ontario environment better to our social needs and quality of life.

To what extent might environmental factors be expected to have an adverse influence on future economic growth in the province? A major justification for the imposition of planning processes lies in its application to reduce the impact of local and regional growth problems, so that a total growth pattern can be sustained. The influence of resource shortages should they transpire may well be expected to be less severe in Ontario and Canada than other industrialized countries. In comparison with the latter our population density and degree of urbanization is relatively light and our environmental problems less difficult to overcome.

On the other hand both provincial and municipal governments in Ontario have received public support for transportation and urban policies that were contrary to conventional growth ethics. We appear to be in approval of taking deliberate measures to avoid the environmental problems of older communities. Other less developed provinces may show a greater inclination to accept the environmental hazards of growth. To the extent that this is so, then Ontario might be expected to lose some prospect of growth to the rest of the nation.

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